COLUMBIA LIBRARIES OFFSITE
HEALTH SCIENCES RESTRICTED
HR00207659

THE LIBRARIES

COLUMBIA UNIVERSITY

HEALTH SCIENCES
LIBRARY

JAN 26 1979 SM

THE

Alienist and Neurologist

A QUARTERLY JOURNAL

—OF—

SCIENTIFIC, CLINICAL AND FORENSIC

Psychiatry and Neurology.

Intended especially to subserve the wants of the General Practitioner of Medicine.

"Quantam ego quidem video motus morbosi fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant."—*Cullen's Nosology: Book II., p.* 181—*Edinburgh Ed.* 1780.

VOLUME XI.

—EDITED BY—

C. H. HUGHES, M. D.,

And an associate corps of collaborators.

ST. LOUIS:
EV. E. CARRERAS, STEAM PRINTER, PUBLISHER AND BINDER,
1890.

COLUMBIA COLLEGE
LIBRARY
NEW YORK

PRESS OF
Ev. E. Carreras, Steam Printer, Publisher and Binder,
ST. LOUIS, MO.

INDEX TO VOLUME XI.

ORIGINAL CONTRIBUTIONS.

	PAGE.
Atrophy of the Skin, Unusual Case of	305
Atypical Myotonia—Non-Congenital	51
Biography, Joseph Workman, M. D..	75
Cerebellar Tumor, with Monocular Diplopia as a Symptom	405
Chirurgia Cerebrale	1
Circular Insanity	175
Drunkenness—Its Influence on Morality	297
Drunkenness, The Unexpected in	44
Extra-Neural Nervous Disease	283
Facial Expression of Cerebral (Multiple Cerebro-Spinal) Sclerosis	411
Forensic Relations of Puerperal State	38
Heart Disease in Insanity and a Case of Panphobia	535
Hereditary Alcoholic Entailment, Psycopathic Sequences of	544
Heart Disease, Mental Relations of..	166
Hypnotism	371
Inebriety, Some New Medico-Legal Questions Relating to	555
Infant Prodigy	359
Insanity as a Symptom of "Bright's Disease"	566
Insanity Proceeding from the Colon	32
Landry's Paralysis, Study of	366
Motor Hallucinations	382
Multiple Neuritis, Case of	341
Neuric and Electric Forces...184, 310,	485
Neuritis of the Viscera, Case of	534
Neuro-Myotonia, Its Differential Diagnosis	62
One Hundred Brains of Feeble-Minded Children, Report of Examination	520
Paranoia in Two Sisters	20
Paranoia, Illustrating Imperative Conceptions	354
Partial Spinal Amnesia, Rare Case of	139
Phthisis, Mental Symptoms of	346
Special Medical Practice, Legitimate Sphere of	158
Typhomania	507
Xerostomia	219

121766

SELECTIONS.

PAGE.

CLINICAL NEUROLOGY—

Abuse of uterine treatment through mistaken diagnosis..... 78
Atasia and abasia..... 88
Athetosis from traumatism..... 421
A unique case of habitual constipapation of neurotic (?) origin..... 229
Can we diagnosticate hyperæmia or anæmia of the brain and cord?..... 418
Chorea..... 415
Convalescence from *la grippe*..... 619
Diagnosis of progressive paralysis in its prodromal stage..... 230
Epileptoid disease..... 227
Hereditary chorea..... 418
Hereditary chorea, with a contribution of eight additional cases of the disease..... 419
Hughlings Jackson on convulsions... 420
Idiocy with pachydermic cachexia (idiotic cretinoide)..... 90
Infantile spinal paralysis in relation to the motor centers of the hemispheres..... 422
Muscular atrophy of tabetics..... 89
New function of the medulla..... 91
Ophthalmoplegia externa with exophthalmic goitre and hysteria... 90
Pseudo-tabes..... 88
Remote effects of ovarian operations 417
Sciatica with deformity of the chest 89
Spinal manifestations of blennorrhagia..... 90
Spontaneous hysterical hypnotism.. 423

NEUROTHERAPY—

Acetanilide in pediatric practice..... 236
A comparison of hypnotics, new and old..... 608
Action of testicular liquids..... 611
Action of the constant galvanic current upon microbes..... 609
Antipyrine in tetanus..... 235
Chloralamid as a hypnotic in mental diseases..... 610

PAGE.

Chloramid..... 94
Chloralamide: a new hypnotic..... 92
Chloride of sodium in the treatment of neuralgia, odontalgia and allied neuroses..... 429
Concerning epilepsia and Peacock's bromides..... 237
Cure of tetanus by destruction of its bacillus..... 96
Exalgine as an analgesic..... 431
Four children at a birth..... 607
Incompatibles of antipyrine..... 237
Nerve exhaustion and opium..... 91
Ocular defects in the treatment of epilepsy..... 96
Some points in the treatment and management of neuroses..... 606
Therapeutical uses of erythroxylon coca..... 95
Untoward effects of exalgin..... 237

NEUROPATHOLOGY—

A dog with half a brain..... 96
Angina pectoris caused by compression of the sympathetic nerve..... 97
Bacilli in Landry's paralysis..... 239
Bilateral hemiataxy..... 98
Changes of character in man following lesions of the anterior lobe..... 237
Convolution of Broca..... 98
Double athetosis..... 98
Fibrinous membranes within the spinal canal..... 99
Homonymous hemianopsia; recovery; subsequent death and necropsy..... 614
Lesions of the spinal cord..... 425
Pathological anatomy of Landry's paralysis..... 238
Recovery from hemianopsia, with subsequent necropsy..... 615
Relationship of somnambulism to epileptoid and epilepsia..... 613
The bristle-shaped bacillus of tetanus..... 99

SELECTIONS.

PAGE.

NEUROPHYSIOLOGY—

Arterial pressure in epileptic paroxysms and fits of temper..... 234
Bulbo-cavernous reflex..... 617
Effect of extirpation of the cerebral hemispheres in the dog..... 235
Note on why we are right-handed.... 615
Poole's theory—epilepsy.....101, 231
Production of cutaneous electric currents in man. 100

CLINICAL PSYCHIATRY—

Chorea among the insane..... 426
Evils of hypnotism 428
Homonymous hemiopic hallucinations..... 621
Laceration of the rectum and perineum (self-inflicted) in an insane epileptic..... 428

PAGE.

Melancholia caused by a medicine... 429
Naphtha delirium..... 429

NEUROSEMIOLOGY—

Althaus on epilepsy after vaccination..... 104

NEUROTOXICOLOGY—

Recovery of absorbed morphine from the urine, the blood and the tissues..... 431

PSYCHIATRY—

Characters of the ocular fundus during the hypnotic state..... 240
Hypnotism and insanity 106
Kleptomania... 619
Psychology of epidemics..... 239

NEUROTOXOLOGY—

A case of antifebrin poisoning..... 621

EDITORIAL.

Ale and Beef Company..... 629
Alternation psychosis of suppressed epilepsia.. 249
American Neurological Association.....451, 630
Association of Superintendents..... 452
Association of Medical Superintendents of American Institutions for the Insane..... 258
A Teutonic blunder..... 257
Bob Ingersoll's biological blunder... 433
Cannot do it, gentlemen 124
Clinical verification of cerebral localization..... 241
Creditable appointment..... 259
Cure of the drunkard, and the *habeas corpus*..... 117
Curability of general paralysis in the insane..... 246
Diarrheas among the Insane..... 439
Dr. Bancroft paralyzed..... 254
Dr. Goodell on the abuse of uterine treatment 124
Dr. James A. Lydston..... 629
Dr. W. S. Whitwell and the San Mateo County Supervisors... 450
Dr. La Loggia..... 630
Effect of mental impression in illustrating cerebral localization..... 449
English, American and German medical education..... 623
Eroto-psychopathy..... 120
Flagrant abuses requiring correction—Proprietary *vs.* legitimate pharmacy..... 447
Functional nervous diseases of reflex origin..... 437
Gynecology and neurology in accord 253
Hydrophobic fright, neuropsychosis, or false hydrophobia..... 123
Johns Hopkins Hospital, Baltimore, Md..... 118
Latest shot at folly as it flies 629
Malted milk..... 255
Medical Mirror..... 256
Merited tribute to Dr. Alice Bennett 628
Monument to Dr. Marion Sims..... 437
Morvan's disease illustrated 440

EDITORIAL.

	PAGE.
Motor center for the larynx	628
Necessity for reform in prescribing	250
Objects of considerable weight suspended by adhesion to finger tips	122
Office-seeking friend of the profession	123
Ophthalmo-psychic strabismus	441
Pathological findings in Dr. W. A. Hammond's case of athetosis	627
Peripheral nervous diseases and general neurosis	242
Physician wanted	438
Possible light on pathology of morbus Thomsenii	258
Preparation of brains for demonstrations, reference and study	448
Protection of insane against fire	452
Psychoses after gynecological operations	124
Psychical (probably neurotrophic) motor aphasia in a child	443
Race and insanity	121
Resignation of Dr. W. W. Hester	255
Result of the burning of Longue Pointe Asylum	452
Retirement of Dr. Hays	450
Right and left-handedness	439
"Society for Psychical Research"	251
State care of pauper insane	255
Subscription agencies	124
Substitution in proprietary remedies and prescriptions	119
Tenth International Medical Congress	113, 247, 441, 445
To the Medical Profession	630
Traumatic tetanus cured by profuse sweating	438
Tropho-neurosis as a factor in the phenomena of syphilis	626
Vertebral artery ligation useless for epilepsy	257
Vicarious function of hemispheres	122
Vicious therapeutics	254

CORRESPONDENCE.

Bevan Lewis' Book on Mental Diseases, a letter relating to this work, from Dr. Theodore Diller	453
Census of Hallucinations, letter concerning, from Prof. Wm. James	460
Inquiry from Judge Sherwood, of the Supreme Court of Missouri, concerning gunshot wound of the brain, throat cut, and hemorrhage.	125
Letter from Bolivar, Tenn., relating to the opening of the Western Hospital for the Insane	261
Letter from Richard Gundry, criticising Dr. Kiernan's article on "Mental Relations of Heart Disease	458
Letter relating to hereditary special amnesic aphasia, from editor of *St. Louis Medical and Surgical Journal*	260
Medico-Legal Congress of 1892, letter relating to, from Clark Bell to Secretary Blaine	456
Secretary Blaine's reply to Clark Bell	457

IN MEMORIAM.

Funeral oration at the burial of La Loggia	461
Dr. Herght	127
Dr. Edwin A. Kilbourne	266
Professor Leidesdorf	263
Dr. Chas. H. Nichols	127, 265
Dr. David Prince	267
Dr. Charles Whittlesey Stevens	262
Carl Westphal	267

REVIEWS.

PAGE.

A country doctor, stories of..... 642
American Journal of Psychology..... 132
American Review of Anthropology.. 136
A mind lost..... 133
Anna's Asylum..... 133
Aphasia, or loss of speech, and the localization of the faculty of articulate language..... 474
Australian aborignes, insanity of..... 136
Buffalo State Asylum for Insane..... 480
Butler Hospital for the Insane..... 479
Cerebral palsies of early life, a study of, based upon the analysis of 140 cases..... 480
Complete directory of the American press..... 651
Dermatology, hand-book of.....274, 136
Electricity in medicine and surgery, Liebig and Rohe's..... 275
Electricity in medicine and surgery, practical..... 275
Epilepsy; pathology and treatment 649
Have we two brains or one?..... 632
Hygiene et Traitement des Maladies Mentales et Nerveuses..... 650
Hypnotism..... 134
Hypnotism, Krafft-Ebing's book on.. 271
Index catalogue of the library of the Surgeon-General's office, volume xi..... 651
Injuries and diseases of the nerves and their surgical treatment..... 133
Insanity after acute surgical or medical affections..... 475
Jack the Ripper, communication from 481
Johns Hopkins Hospital Reports.—Post-febrile insanity—five cases..... 472

PAGE.

Kansas Medical Journal..... 135
List of superintendents..... 478
Maine Insane Hospital..... 477
Massage and the original Swedish movements; their application to various diseases of the body..... 274
Mental diseases..... 273
National Magazine of Chicago..... 481
Nervous diseases, familiar forms of... 647
Northampton Lunatic Hospital..... 477
Ophthalmic Review..... 136
Oxford Retreat..... 478
Publications du Progres Medical..... 275
Review of Insanity and Nervous Disease..... 651
Sexual perversion, satyriasis and nymphomania, lecture on..... 481
Skin diseases, manual of..... 275
Spinal concussion..... 268
Sporadic cretinism, case of, with remarks..... 136
State Asylum for Insane Criminals, Auburn, N. Y..... 479
State Hospital for the Insane, at Norristown, Pa..... 478
State Lunatic Asylum at Trenton..... 477
Take them out..... 278
The central nervous system; a guide to the study of their structure in health and disease..... 280
The dogs of war..... 650
Through the ivory gate..... 279
Typhoid fever..... 649
Tropho-neurosis as a factor in the phenomena of syphilis..... 642
Visceral neuroses in women..... 276
Was Harvey insane?..... 128

HOSPITAL NOTES.

Boston Lunatic Hospital..... 470
Cleveland Asylum for the Insane..... 466
Government Hospital for the Insane, Washington, D. C..... 468
Illinois State Board of Health..... 467
McLean Asylum for the Insane..... 465
St. Louis Insane Asylum..... 631
Western Pa. Hosp.—Insane Depart.. 467

COMPLIMENTARY ASSOCIATION DINNER.

Complimentary Dinner given Dr. Joseph Parrish, President of the American Association for the Study and Cure of Inebriety..... 108

Contributors to Volume XI.

HARRIET C. B. ALEXANDER, M. D., Chicago, Ills.

ALICE BENNETT, M. D., Ph. D., Norristown, Pa.

T. D. CROTHERS, M. D., Hartford, Conn.

S. V. CLEVENGER, M. D., Chicago, Ills.

THEODORE DILLER, M. D., St. Louis, Mo.

JOHN FERGUSON, M. A., M. D., L. R. C. P., Toronto, Canada.

A. W. FLEMING, M. D., St. Louis, Mo.

ROBERT FUNKHOUSER, A. M., M. D., LL. B. St. Louis, Mo.

C. H. HUGHES, M. D., St. Louis, Mo.

JAS. G. KIERNAN, M. D., Chicago, Ills.

HAROLD N. MOYER, M. D., Chicago, Ills.

A. H. OHMANN-DUMESNIL, M. D., St. Louis, Mo.

Professor SALEMI PACE, Palermo, Italy.

FREDERICK PETERSON, M. D., New York.

GEORGE J. PRESTON, M. D., Baltimore, Md.

JOHN SCHILLING, M. D., Millstadt, Ills.

GIUSEPPI SEPPILLI, M. D., Imola, Italy.

ALEXANDER B. SHAW, M. D., St. Louis, Mo.

HUGO SUMMA, A. M., M. D., St. Louis, Mo.

Professor TAMBURINI, Italy.

A. W. WILMARTH, M. D., Elwyn, Pa.

JOSEPH WORKMAN, M. D., Toronto, Canada.

T. L. WRIGHT, M. D., Bellefontaine, O.



Truly Yours
Thos Bowers

THE

Alienist and Neurologist.

VOL. XI. ST. LOUIS, JANUARY, 1890. NO. 1.

ORIGINAL CONTRIBUTIONS.

LA CHIRURGIA CEREBRALE.*

"*RASSEGNA.*"

By DR. GIUSEPPI SEPPILLI, Imola, Italy.

There is not in all the old world a more assiduous and intelligent student of cerebral physiology and pathology than the author of the above-named article, for which we are indebted to that excellent periodical the *Rivista Sperimentale di Freniatria e di Medicina Legale*, published at Reggio Emlia, Italy. At the present time, when every new enterprise, as well in the domain of the healing art as in every other department of human affairs, is sure to attract the attention, and very largely to command the approval of the lovers of novelty, the well-considered and dispassionate utterances of a critic so well qualified as Dr. Seppilli, to form and express a discreet opinion on the treatment of brain diseases, cannot fail to prove both interesting and instructive to every reader who is anxious to acquire additional knowledge on a subject of such vital importance.

The amount of bibliographical research bestowed by Dr. Seppilli on his subject, has been truly creditable to his industry and his perseverance. It is very gratifying to us to note that in the list of writers quoted by him (fifty-two in number) no less than forty-two are English and American, whilst only four are German and three each French and Italian. It is then very evident that Italian physicians are better acquainted with our professional literature than we are with theirs, which certainly is all the worse for ourselves.

Without further preface we now present the translation of Dr. Seppilli's *Rassegna*.

THE most adventurous appliance of cerebral surgery is that which has of late been attempted for the removal of endo-cranial tumors. Before deciding in these cases on an operation, it is necessary, for the purpose of

*Translated by JOSEPH WORKMAN, M. D., Toronto, Canada.

discovering whether it is justifiable, to establish the fact that a neoplasm really exists in the brain, and to know its nature and the seat occupied by it. In relation to this enquiry, I would briefly recall to the reader the observations presented in my work on Cerebral Tumors. (V. Encycl. Med. Ital. del Vellardi.)

Diagnosis of the existence of a cerebral tumor is certainly in many instances difficult, and sometimes even impossible, but in certain cases the history, the course of the disease and the complexus of the symptoms are so characteristic, as to enable us to hold with certainty, or at least with great probability, that the brain is the seat of a neoplasm.

Diagnosis of the nature of a tumor is a difficulty almost always insuperable, as cerebral tumors have not a clinical typical resemblance, differing according to their anatomical structure. As regards surgical intervention in relation to the nature of the tumor, it is indicated in the cases of tumors which are benign, and which have been primitively formed in the brain and in the meninges, as fibroma, sarcoma and epithelial tumors of the dura mater.

Bergmann thinks the operation is not indicated when we have tuberculosis of the brain, because this is usually but the manifestation of a more extensive or general affection, and tubercles exist in the other organs.

We should next reflect that the cerebellum is the preferential seat of tubercle, and that, from its anatomical relations with the bulb, it presents conditions unfavorable to an operative act. Up to the present time three cases of enucleation of cerebellar tumor have been met with—two of tubercle (Horsley and Bennett-May), and one of glioma (Suckling), but all proved fatal from *shock*.

In carcinoma of the brain surgical intervention is absolutely contraindicated, and especially when, as is most frequently observed, there are manifestations of the same neoplasm in other parts of the body. *White* and *Bergmann* hold that gummata of the brain should never be

operated on. On the other hand, *Seguin* is of opinion that if, after a course of antisyphilitic treatment of mercury and the iodide of potass., symptoms indicating localization persist, a surgical operation is justifiable, for gummata are inert tumors and they act as foreign bodies.

In the recent congress of the German Society of Surgeons, held in Berlin in April last, Horsley maintained that trephining should be practiced in cases of cerebral syphilis, in which after treatment with iodide during a month, no notable improvement had been effected.

Autopsies of 100 cases of cerebral tumors have been collected by White, in order to decide in how many of these an operation might have been indicated. He concluded that out of forty-five cases of tubercular tumor, there were only three in which an operation could be justified; that in twenty-four cases of glioma, perhaps four might have been operated on, and in ten cases of sarcoma perhaps one. In five cases of carcinoma the disease was secondary. He concludes by saying that if the diagnosis of seat had been established with certainty, in the commencement of the development of the neoplasms, operation could have been justifiable in only ten cases.

But besides the existence and the nature of a cerebral tumor, it is important that its seat be ascertained, in order to discover whether it can be reached by the surgeon and easily removed. This purpose is admirably served by the knowledge now possessed of the normal and pathological processes of the functions of the brain, and especially those of its cortex, which is more accessible than any other part of the encephalon to the hand of the surgeon, because of our present knowledge of its topography.

As *Seguin* has stated, it would be of great importance in the securing of a successful result in cases of brain tumors, that the surgeon should be able to decide whether the tumor is cortical or subcortical—in other words, to fix its depth. But this distinguished American neurologist remarks that examination of clinical

cases fails to furnish elements sufficient for such a diagnosis. We find that the morbid phenomena do not present characters so distinct and evident as to enable us to infer from them the cortical or subcortical seat of a neoplasm. In fact the convulsive attacks may be, as regards mode of inception and of diffusion, and the nature of the spasm, identical in both cases, when the tumor is seated in the motor zone; and so also we may have bilateral hemiopia and verbal deafness, whether the tumor is seated in the cortex of the occipital and the temporal lobes, or in the medullary substance of these lobes.

The order of succession of the morbid phenomena, irritative and paralytic, does not constitute a secure element for the cortical or subcortical diagnosis of a tumor. *Jackson* has held that cortical lesions of the motor zones first determine convulsions and afterwards paralysis. But this cannot be accepted as absolute. *Seguin*, for example, in three cases of cortical tumors in the motor zones, found that in one the spasm had probably preceded the paralysis; that in the second the paresis and spasm appeared simultaneously, in the left hand; and in the third case a single spasm was first presented. In like manner, in a case of subcortical tumor of the motor zone, the paresis preceded the spasm, whilst in another case of subcortical tumor, the spasm preceded the paresis.

It has been held that a circumscribed violent headache is an important symptom for the diagnosis of a cortical lesion. But on putting this fact into relation with tumors, we find that it is not generally applicable, since it has been observed that head pain has often been wanting in cortical tumors, and that on the other hand it was present in cases in which the neoplasm was seated deeply. However, head pain, when it does exist, is an element which should be taken into account, for the diagnosis of a cortical tumor. A more sure indication is afforded by percussion of the cranium, when by this means a more or less intense, localized pain is provoked

in a definite region. Observations on the cranial temperature, in some cases of cerebral neoplasm, have according to Seguin, given results which seem to indicate that the temperature of the head is sometimes increased over the seat of the tumor. After this short digression on the diagnosis of cerebral tumors, I now proceed to report the cases, in which, as far as is known to me, an operation has been performed.

In 1884 *Bennett* and *Godlee* published the case of a man who had presented a left hemiplegia, which commenced in the face and tongue; there was also optic neuritis. These along with other symptoms of less importance, induced Bennett to believe that there existed a tumor in the brain, and that it occupied the cortical substance, was of small size, had destroyed the centre for the arm, and was situate in the vicinity of the upper third of the fissure of Rolando. Trephining was executed on this region, and the dura mater was raised; no tumor was found, but an incision being made in the ascending frontal convolution, which appeared swollen, a neoplasm (glioma) was met with at ¼ inch distance under the cortex, and it was enucleated. The patient died twenty-eight days afterwards from suppurative meningitis.

Hirschfelder and *Morse*, in February, 1886, removed a glioma from the motor region, but death took place on the seventh day after the operation, from encephalitis.

The greatest impulse to the surgical treatment of cerebral tumors has been given by the English surgeon *Horsley*, who has operated in several cases, which I shall here briefly report:

A man 20 years; cortical Jacksonian epilepsy, which commenced with spasm in the left fingers and extended to the forearm and the left face, and afterwards became general. The attacks were very frequent.

Diagnosis.—A tumor in the motor centre for the hand. By trephining (on June 22d, 1886), a tubercular tumor, 1½ inch thick, was removed from this region. There was no attack for three months afterwards; but in September,

October and November there were eight, limited to the shoulder. There were none after these.

A man of 38 years. An irritative and destructive lesion which had caused complete left hemiplegia, coma and epileptiform attacks, commencing in the left shoulder.

Diagnosis.—A cortical tumor on the upper part of the right brachial centre. On Sept. the 23d, '86, a glioma of 4½ ounce weight was removed. The patient died on the 18th of March, 1887, six months after the operation. The attacks were not repeated after the operation; the patient gradually improved in the first three months, but afterwards new symptoms of the presence of a tumor appeared.

A man of 37 years. Irritative and destructive lesion, which had gradually produced a right hemiplegia (complete in the hand, incomplete in the leg), and attacks which commenced in the right index finger. Head pain.

Diagnosis.—A tumor in the cortex of the centre for the right hand. On December 7th, '86, a tumor weighing 4½ ounces was removed. There was no more head pain, nor any attacks. The paralysis persisted.

A man of 18 years. The object of the operation was the removal of a destructive progressive lesion, which had produced vomiting, head pains, optic neuritis, bilateral paresis, especially of the left arm and leg.

Diagnosis.—Tumor on the right side of the cerebellum. On December 17th, '86, trephining was made over this locality, and a tubercular tumor of seven gr. weight (? grammes) was removed. The operation was practiced as a last resource. Death in nineteen hours. General chronic tuberculosis was present.

The illustrious English (no Signore, not *English-Scottish*) surgeon *MacEwen* has operated in several cases of cerebral tumor, which I have pleasure in reporting.

In a man, from whom a tumor in the left orbital cavity had been removed, the following phenomena were presented; myosis of the right eye, permanent mental torpor, pain in the head, convulsions limited to the right

side, commencing in the face and arm, afterwards extending to the right leg, and then becoming general, with loss of consciousness.

Diagnosis.—Irritative lesion of the inferior and middle portion of the ascending convolutions. Trephining was performed in correspondence with this part, and the bone being removed, there was found a tumor of the dura mater corresponding to the anterior two-thirds of the frontal lobe. The tumor was cut away along with the cerebral membranus to which it adhered. The patient rapidly recovered. He died two years afterwards of Bright's disease.

In a case of brachio-crural monoplegia, without disorder of sensibility, a syphilitic tumor was removed from the paracentral lobule. The patient regained the motion of the legs, and after a month he was able to walk and to attend to his business.

A boy of seven years became subject to frequent epileptiform attacks, which commenced with a painful sensation in the great toe of the right foot. A short time afterwards the toe was extended in a clonic spasm, which lasted about five minutes. Sometimes the attack thus ended; but more frequently it was followed by clonic contractions of the muscles of the right foot, the leg and the thigh, and then the convulsions ceased. At other times the right arm and face took part. The convulsion was rarely general, and when it was so, there was always loss of consciousness.

Diagnosis.—A lesion, probably tubercular, situate in the upper portion of the ascending convolution. Operation being made, a few tubercular nodules were found adhering to the vessels on the upper portion of the ascending frontal convolution. On palpation there was found in the upper part of the ascending parietal a circumscribed nodule nesting in the cerebral substance, of the size of a hazel nut, and it was extirpated. There was no more convulsion for a year after, and his health was excellent.

Rannie describes the case of a man of 35 years, affected with tertiary syphilis; at eighteen he suffered

under an intense localized pain in the right fronto-parietal region. Afterwards he had convulsive attacks on the left side, which lasted two or three minutes, with loss of consciousness; these disturbances were greatest in the arm and the face, and paresis in these parts followed.

Diagnosis.—Probably a syphilitic tumor in the parts corresponding to the centres for the face and the arm. The cranium was trephined in correspondence with the A. F.; the bone was thickened. On cutting the dura mater, which was thickened, a puriform liquid escaped from the centre of a gumma which had its origin there. The tumor was removed. No further attack.

Birdsall and *Weir* relate the following case: A woman of 42 years. In August, 1885, she walked with uncertainty and had vomitings. Transitory diplopia. Frontal head pains (blindness of the left half of both retinas). No lesion of motion. Bilateral neuro-retinitis, more manifest on the left.

Diagnosis.—A tumor of the right occipital lobe in the vicinity of the cuneus. Trepanned on this region. A sarcoma was removed, which was found adhering to the posterior extremity of the falx, pressing the right occipital lobe, and destroying the cerebral tissue. Death a few hours after the operation from hemorrhage.

Bennett-May operated on a man of 25 years, affected with convulsive attacks on the left side, subsequent paresis in the limbs, and bilateral optic neuritis. Having trepanned over the upper portion of the fissure of Rolando, he removed, with the scoop of Volkmann, a glioma, together with the middle portion of the ascending parietal. The patient died, a month after, from septic meningitis.—*May* also removed a tubercular tumor of the cerebellum, in a boy of seven years, who had head pain, vomiting, optic neuritis and tottering walk. The operation was succeeded in a few hours by death from *shock.*

Keen has reported the following case: A man of 26 years. At the age of three years he suffered an injury on the head. He had constant head pain, which became

more intense on the supervention of epileptic attacks, in February, 1885. Paralysis on the right in the limbs and the face. On examination made in June, 1885, there was found a localized pain on the left side of the head, more intense in the parietal regions, where there was a cicatrix, right facial paralysis, and diminution of sight on the right, pupil dilated and immobile, aphasia.

Diagnosis.—Compression of the anterior lobe of the left hemisphere by an exostosis or a tumor, or by thickening of the dura mater. In August, '86, complete blindness, first in the right eye, and afterwards in the left. After two months the sight improved in the left eye; the right eye continued blind for several months, and then it suddenly regained its function. This phenomenon occurred frequently in both eyes. In May, '87, the epileptic attacks, which had diminished in frequency and intensity, re-appeared on the right side of the body. Ophthalmoscopic examinations; atrophy of the optic nerves. On the 5th of December a large opening was made on the left fronto-parietal region, and a large fibrous tumor was removed, which was adhering to the dura mater, and was situate in the vicinity of the fissure of Rolando, over the foot of the three frontal convolutions. The operation lasted about two hours. The cicatrization of the opening was completed in seventy-one days. The paralysis of the right side was sensibly improved; and the defects of sight had decreased.

Suckling.—A girl of 12 years. For two years past she had suffered pains in the head, and vomiting in the morning. In the last nine months weakening of the right extremities, and in the last three months continual pains over the right eye. On examination there were presented,—paresis of the right extremities and of the left facial muscles; deviation of the tongue to the right; nystagmus; bilateral neuroretinitis and staggering walk.

Diagnosis.—A tumor (glioma) compressing the facial nerve and the left abducens, also the pons. An incision being made from the external occipital protuberance to

the mastoid process, trephining was executed in the occiput below the transverse sinus. The dura mater was cut, and the cerebellum was found of a dark red color. No hardness was felt by the finger. The cerebral substance was then cut, and a finger was introduced; it was found that the texture was softened. A part of the cerebellar substance was removed, and the borders of the cutaneous opening were reunited after applying a drainage tube. The patient died of collapse forty-eight hours after the operation. At the autopsy it was found that the left cerebellar hemisphere and the median lobe were the seat of a glioma.

Durante.—This distinguished Italian surgeon, in May, 1884, before *Godlee*, removed from a patient who presented loss of memory, and disorder of smell and of speech articulation, a cerebral tumor of the size of an apple. [Query by translator: How big are apples in Italy? In America they vary much in size; some would be tight squeezed in an ordinary human skull, but others might find room enough in a by-corner.] It occupied the left anterior fossa of the cranium and extended to the right side, passing over the cribriform lamella (of the ethmoid), which it had destroyed; posteriorly, it reached to the clinoid processes (of the sphenoid), in front of the sella turcica. The left anterior cerebral lobe was atrophied. The tumor was from the dura mater and it was a glioma. On the 14th day after the operation the patient left the hospital, free from any disturbance in his motions, and at the end of three months he had regained memory and smelling on the right side. It is four years since the operation, and his recovery continues complete.

Seguin and Weir had recourse to surgical treatment in the following case of cerebral tumor: which was that of a man of 39 years, who in the autumn of 1882, during a malarial fever, had head pain, and a convulsive attack, limited to the right side of the neck and face. A similar attack occurred in the year following. From 1885 onward there frequently occurred attacks which consisted in a sen-

sation of cold, followed by spasm and shakings in the right arm and hand, and the right side of the face. Some of the attacks were localized in the right cheek, or commencing there, they became general, more or less strong pain, but constant, in the left parietal region. Later, paresis of these parts was observed, with slight aphasia and agraphia.

Diagnosis.—Jacksonian epilepsy, with brachio-facial paresis, from a tumor situate in the facial centre of the left motor zone. An opening was made (Nov. 17th, '87), which had an area of 2—3 inches, in the left fronto-parietal region, and after raising the dura mater, a tumor (sarcoma) of about an inch in thickness was removed; it was found under the foot of the second frontal and the anterior limits of the ascending frontal, probably near the upper wall of the ventricle. The attacks recurred from time to time in December, 1887, and in January, March, April and May, 1888. An examination on June 6th, '88, showed paresis of motion and sense in the fingers of the right hand, right facial paresis and tremulous tongue. Speaking became more easy from day to day, walk normal.

Ballet and Gelineau.—A man of 28 years, suffering from the age of 22 from epileptiform disturbances. The attacks occurred every eight or ten days, and did not yield to any remedy; at last they became so frequent as to imperil the life of the patient. The convulsions commenced in the lower right limb.

Diagnosis.—A cerebral tumor situate at the level of the upper portion of the two ascending left convolutions. Trephining was performed, and the tumor (fibro-lypoma) was removed; it was adhering to the pia mater. The wound healed in ten days. The epileptic convulsions diminished after the operation, and in two months they disappeared completely.

Fischer.—A patient who had suffered head pain in 1887, was in 1888 seized with epileptiform attacks, with paresis of both arms. An operation was performed, but no

tumor was found. The patient improved, and the paresis disappeared. After two months fresh epileptiform attacks occurred, followed by paralysis. Trepanning repeated. A tumor was lighted on, and it was removed with the fingers. After sometime another tumor appeared at the trepanned part, and the patient died in three months after the operation. The tumor was a sarcoma with round cells.

Knapp and Brandford.—A man of 32 years, presented symptoms of a cerebral tumor: head pain, vertigo, vomiting, optic neuritis, and convulsions, which were most frequently preceded by a sensory aura in the left hand and forearm, and commenced with spasm of the wrist, afterwards permanent paralysis and contracture of the left arm.

Diagnosis.—A tumor localized in the right hemisphere, corresponding with the middle portion of the two ascending convolutions, in which the centre for the hand and wrist are found. The tumor was removed (tubercular) with the fingers, it was found ½ inch beneath the cortex, it weighed about 36 grammes and measured 7x4x3 c. m. The patient died in three-quarters of an hour after the operation. No autopsy.

Knapp and Brandford have given the following four cases, in which the tumors were not found in the location trepanned:

Amidon and Weir.—A woman of 26 years, from whom a sarcoma on the neck had been removed, presented paralysis of the left arm and cramp of the left hand, cramp and paresis in the left leg, frontal head pains, left optic neuritis. The cranium was trepanned over the upper part of the Rolandic fissure, and a barky piece which was congested was removed. The head pain and the spasm ceased, the paralysis improved, but after three months the right side became paretic. Death happened ten weeks after the operation, and a sarcoma of the cerebellum was found.

Dana and Pilcher.—A man, two years after a wound

on the head, presented epileptic attacks and mental weakening. There was no symptom indicating localization. He was trepanned over the region injured, corresponding to the angular gyrus. A cerebral hernia appeared, of which a portion was removed. No tumor was found. The patient died in thirty-three hours, and on dissection a glioma was found in the anterior half of the left hemisphere, extending to the corpus callosum; this neoplasm could not be removed.

Wood and Agnew.—A man had in 1886 vertigoes, in 1888 bilateral optic neuritis. In January, '89, he presented left lateral hemiopia, with loss of equilibrium and head pain. Trepanning made over the right cuneus; a cyst of hemorrhagic softening was found. Death from shock and hemorrhage a few hours after. A large tumor was found in the right temporo-sphenoidal lobe.

Putnam and Beach.—The case has not yet been published. Trepanned over the third frontal convolution, but the tumor was found in the inferior parietal lobule.

On inspecting the results obtained by the intervention of surgery in the preceding twenty-four cases of cerebral tumor, it is shown that in thirteen of them the result was fatal, and was produced in most of these cases by shock or hemorrhages; sometimes death resulted from consecutive meningitic osencephalitis, consequent on the operation. In eleven cases the patient survived the operation; the morbid symptoms were removed in one case of Horsley, in three of MacEwen, and in each of the cases of Rannie, Durante, Ballet and Gelineau; in the other five cases there was observed an improvement after the operation, but in one of these, reported by Horsley, and one by Fischer, the tumor was reproduced after a few months. As respects the seat of the tumor in the cases collected by us, it is seen that in the greater number (fifteen) it was in the motor region; in four cases it was in the cerebellum, in one in the occipital lobe, in one in the inferior-parietal, in one in the temporal, and in two in the frontal lobe.

From examination of these few cases we are not, for

the present, warranted in expressing a decisive judgment on the propriety, or the contrary, of surgical treatment in cerebral tumors, and, but so much the more, must we, in deference to truth, concur in the belief that the results hitherto obtained do not seem so very encouraging as to tempt to the removal of cerebral tumors. In considering a curative treatment quite new, we cannot approve of the bold attempts of those surgeons who, in extreme cases, practice the operation, more especially when, as was the fact in one of Horsley's cases, there are lesions in other organs, or when the tumor is seated in a locality, *e. g.*, in the cerebellum, which presents obstacles to the manœuvres of the surgeon. In order that operative intervention may be accepted as a healing measure in endo-cranial tumors, it seems to us to be indispensable that the cases in which it is advised shall present, both in their nature and their location, such favorable conditions as to give hope of good success, and that there may be precise indications before proceeding to an operation which may imperil the life of the patient. Singleness of the neoplasm, its seat in the meninges or on the convex surface of the cortex, rather than in the interior of the brain, its benign nature and its smallness of volume are circumstances favorable to a good result. The enucleation of a tumor that has been developed in the cerebral substance, always leaves the fear that the cicatrix formed in the locality occupied by the neoplasm, may become the point of departure of an irritation which may give place to the same phenomena, especially the convulsive, as those which a tumor provokes, and it is in these phenomena that one of the principal indications for an operation is found.

The difficulty of cerebral surgery, in these cases, consists not so much in the operative technique, as in the possibility that the tumor diagnosed is not to be found. Weir, in one case performed the operation, but he failed to find any tumor. The patient survived the operation. Hammond diagnosed a probable tumor in the motor

zone, in a woman who had a left hemiplegia, which had been preceded by convulsions on the same side. He trepanned, but no neoplasm was found. The patient died of shock within twenty-four hours, and at the autopsy three cysts were found deeply embedded in the white substance of the motor region. Weir refers to two cases of Gerster and Marko, in which the tumor was not discovered. In the last four of the cases collected by us, the tumor in each existed in a locality different from that selected for the operation. *Bendandi* has recently published a case of epilepsy in which he performed trepanning of the cranium, with fortunate result. The case was that of a man of 36 years, who had since his 18th year been subject to convulsions produced by a fright. In the first years the fits were frequent, but they afterwards became less so; in 1888 they increased in frequency, and left after them a paresis in the limbs of the right. From August onward the paresis became permanent, especially in the arm, and in November following clonic spasms were presented in the right arm. Diagnosis was made of a lesion in correspondence with the left motor zone, and chiefly in the centre for the right arm, due perhaps to a tumor. Trepanning was performed on the left parietal region, but no lesion was found on the surface of the brain, and as Bendandi was in doubt that there was a subcortical tumor, he made an incision in the Rolandic zone, three c. m. long and as many in depth; he explored with his finger, but he found nothing abnormal excepting an unusual softness of the cerebral substance. The convulsions and the spasm in the right arm did not again appear after the operation, and the paresis soon disappeared. The author supposed the morbid anatomical condition in this case had been caused by a circumscribed œdema of the left motor zone, and that by the trepanning and the cerebral cutting a chemical molecular change had been provoked in the nervous elements, and that the suspension of the convulsive fits had been its first effect.

These cases show that we ought to proceed with very

great caution in the surgical treatment of cerebral tumors, so that the success of this new therapeutic means may not be endangered, for when judiciously employed, it may, as had been shown by some of the cases related by us, be useful and effectual. It will not be out of place to recall here what we demonstrated in our work (Seppilli on the Semeiological Significance of Partial Epilepsy), and which was confirmed afterwards by *Ventra*, *i. e.*, that the *partial or Jacksonian epilepsy*, which had been regarded as a symptom exclusively belonging to an organic lesion, and more especially to a neoplasm of the cerebral cortex, may on the contrary, depend on a *cortical lesion purely dynamic and functional*, which consequently escapes our senses. *MacEwen* insists on the necessity of localizing the affection, and on the selection of appropriate cases before proceeding to an operation on the brain, and he adds that even after the brain has been exposed and its lesions discovered, the surgeon should observe whether it is well to continue the operation or to abandon it. In a case in which he had, from the manifestations of the motor phenomena, diagnosed the exact seat, he met with a tumor in the centres for the arm and the leg, but it was of such dimensions as to induce him to abstain from attempting its removal, because it would have produced a more grave hemiplegia than that already existing. Instead of proceeding further, he limited himself to the ligation of the vessels going to the tumor, in the hope that by this means the further growth of the neoplasm might be hindered. The patient improved considerably. In a case related by *Ross* and *Heath*, trepanning was performed, but the tumor was left *in. situ*, as it was large and adhering to the anterior fossa of the cranium, *Bergmann* observes that the results of cerebral surgery are less fortunate in tumors than in abscesses. He says gummata and tubercles should never be operated on, and even should a tumor, by its nature be operable, it is yet necessary that its volume shall not be too large, and that its seat may be determined with precision.

The volume of a tumor should be taken into serious consideration before deciding on an operation, for if the removal of the neoplasm unavoidably produces an extensive destruction of the cerebral substance, serious functional disorders may arise from the process of cicatrization, which takes place in the locality operated on. Thus the removal of a more or less extensive part of the zone, gives place to a permanent paralysis with contracture, from degeneration of the pyramidal fascicle. MacEwen states that we should not hesitate to evacuate the pus of an abscess, but he adds that in the presence of a stationary cicatrix, or of a neoplasm of slow development, in the motor area, producing from time to time epileptic seizures, few will attempt the cutting away of a large portion of the motor zone, as this would be followed by a permanent hemiplegia.

We do not wish to take leave of this subject of cerebral surgery, without giving, at the least, a succinct description of the operatorial method which ought to be followed.

One or two days before the operation, the head is shaved and it is washed with soap and ether, after which antiseptic compresses, bathed in a solution of corrosive sublimate (1. c. 1000), are applied. The anæsthesia of the patient is effected by chloroform, or still better by ether. Having determined the region of the skull on which the operation should be executed, a large semilunar incision is made in the skin, which is perferable to a crucial form. The flap of the skin is now dissected and raised, and a trephine of large diameter ($1\frac{1}{2}$ inch, sometimes 2 or even $2\frac{1}{2}$) is applied, once or more, in order to obtain a large opening. In one of Keen's cases the osseous breach measured $2\frac{1}{2}$ inches in one direction, by three in the other. The dura mater is then cut circularly at the distance of $\frac{1}{4}$ or $\frac{1}{8}$ inch from the edge of the aperture, leaving it adhering at its upper limit in such a manner that a skirt is formed, which is raised in order to bring the brain into view. If the dura mater is adherent it is excised.

The brain being now stripped we have to decide whether the locality corresponding on it to the aperture is that on which to operate. Electric excitation may, in uncertain cases, be advantageously adopted, in order to recognize a given point of the motor zone, by noticing the muscular reactions provoked in various regions of the body. This is of special service when a definite motor centre must be removed, *e. g.*, that of the hand, in fixing more exactly its seat on the cortical surface.

In the cases in which the diagnosis of an abscess has been formed, we may without any danger, with an exploratative view, introduce a needle of the injection syringe of *Pravaz*, and with it aspirate. This search is very useful for assuring ourselves that the abscess really exists, and for deciding in what part of the brain it is situate. The abscess is then opened in order to give exit to the pus. For the removal of a tumor it is often found necessary to incise the cerebral tissue for a certain extent, as is done in the case of an abscess. Sometimes it is superficial, and it comes into view as soon as the edge of the dura mater is raised. But when the tumor is subcortical, it is necessary to use palpation in order to determine its seat, consistence and extent, and then the cerebral substance is cut into in order to reach it. The incision should be made in a direction perpendicular to the course of the convolution, so as to avoid cutting many vessels. In order to abstract the tumor a fine knife, or the point of a finger, is used, by which the cerebral substance is delicately lacerated. *Weir* used with advantage the scoop of *Volkmann*. In the place from which the neoplasm has been removed, no cavity remains, for, as *Horsley* has observed, the bottom swells in a very short time, and it rises up almost to the level of the surrounding cortex.

The emptying of a cerebral abscess or the enucleation of a tumor having been accomplished, a small drainage tube is applied on the interior of the wound. *Horsley* advises that in the case of a tumor, the tube may not be kept in more than twenty-four hours; but *Weir* thinks that

it is better to leave it in till the second or the third day.

One of the greatest dangers of cerebral surgery comes from hemorrhage, which proceeds especially from the bone or from the dura mater. In order to arrest it the ordinary methods of compressions, with dossils, sponges, hæmostatic pincers and ligation of the vessels are adopted. Against hemorrhage from the cerebral substances, *Keen* found a strong solution of cocaine (ten per cent.) effectual when applied directly on the brain.

MacEwen, for the first, in 1873, proposed the closing of the opening in the cranium by replacing in it the bony discs divided into minute fragments. When suppuration did not follow these united, and thus the continuity of the bone was conserved. *Keen*, *Horsley* and *Weir* have confirmed these good results in their operations; but Keen does not reduce the bony discs to fragments; instead of this he applies them as they are found. The discs isolated by the trephine are immediately put into an antiseptic solution, in which they remain until the moment at which they are to serve to close the breach in the cranium. This is obtained by fixing, with a ligature (?) of catgut, the pieces of bone to the interior surface of the cutaneous semilunar flap, by which the aperture is covered. In one of *Keen's* cases the bony disc, of 1½ inch diameter, was replaced *in situ* along with about fifteen fragments.

We should endeavour to secure the satisfactory cicatrization of the wound in order to prevent cerebral hernia. In a few cases the healing was very rapid, as in those of Keen, in which the wounds cicatrized in seventy to eighty days. It is to be hoped that cerebral surgery in following the path which it has entered on, and holding as its basis the physiopathology of the brain, may obtain results in its application so splendid as to acquire an important position in the therapeutics of endocranial affections.

PARANOIA IN TWO SISTERS.*

By FREDERICK PETERSON, M. D.,

Pathologist to the New York City Lunatic; Asylum Lecturer on Nervous and Mental Diseases at the New York Polyclinic and Vanderbilt Clinic.

THE simultaneous development of insanity in two or more persons associated together, or the imposition of delusions gradually arising in the mind of one upon the impressionable intellect of a second, third or of many persons, has been described under the names *folie à deux*, *folie simultanée*, reciprocal insanity, *folie imposée*, etc. There are several factors which govern the evolution of such insanities. In both forms a degenerative soil is usually required for the proper germination and growth of morbid ideas. In the simultaneous variety there must be, in addition to predisposition, that similarity of intellectual substrata, which we find particularly in persons who are blood relations or who are intimately joined together by mutual like and dislike; hence it is that brothers or sisters most frequently manifest simultaneous insanity. Take two healthy children of one family and bring them up far apart, yet there will be innumerable physical resemblances between them, and many peculiarities in their character and conduct which prove them to be consanguineous; if a hereditary instability of nerve-cells had been implanted in them, there would be a tendency to a similar form of dissolution, even if they remained apart. How much greater would this be in two persons so intimately associated as sisters for instance. In children the study of unconscious imitation is one of great interest. Who has not observed the identity of intonation of phrases, of gesture, of laughter, of many facial expressions, of certain habits, in children either related or brought up

* Read before the American Neurological Association, at Long Branch, N. J., June 25th, 1889.

together? Such unconscious imitation, as is well-known, may lead in children to the contraction of certain nervous and even mental diseases. The contagious quality of emotions is well established. An explosion of laughter will call up smiles on even melancholy faces in a crowd. A pathetic scene on a stage will bring tears and depress the oral angles in a large audience. The unconscious imitation of gestures, such as bowing, often seen in adults, is in a milder degree such mimicry of motion as is observed in dancing mania.

Another element in the imposition of insanity by one upon another is the quality of the morbid mind-product. If a delusion, it must have an air of probability to the person receiving it, and must be gradually developed and imposed. It is because suspicion is inherent in the nature of most people, because suspicion can wear so much probability of truth that persecutory delusions are by far the most frequently adopted by others. Credulity is an important factor in the imposition of insane delusions upon others. It was the ready credulity of large numbers of people, especially as regards religious subjects, that in the past has led hundreds of thousands of people to adopt with faith the delusions of paranoiacs like John of Leyden, John Thom of Canterbury, Joan of Arc, Richard Brothers, Joanna Southcott, John Brown and many others, and actually to sacrifice their lives upon the altar of their beliefs. Though these delusions emanate from an insane person, their acceptance by others does not, of course, necessarily imply insanity in the latter, for delusions of this character have their support in the superstitions of people and in their ignorance concerning supernatural matters. A persecutory delusion might be imposed by an insane person upon an intimate associate, and yet the latter need not of necessity be insane; but when the exposed individual adopts the delusions, regulates his conduct upon them, allows them to become rooted in his mind, even begins to share the hallucinations of his friend, there is, of course actual aberration

of mind present. Four cases of *folie à deux* have come under my observation. One case was that of two sisters, aged about 50 to 55, Irish, washerwomen, who living alone by themselves in a tumble-down shanty, were often tormented by boys throwing stones at the house at night, and otherwise teasing them. They finally developed persecutory delusions with hallucinations, and both were very much alike. They became so violent in their demonstrations, that ere long both were taken to the asylum, where I took charge of them. They were separated, the result being that one became rapidly demented and the other became a quiet worker with fixed persecutory ideas and auditory hallucinations.

Another pair of sisters, colored, between 40 and 50 years of age, living in New York, are similarly affected. For ten years one sister has been a paranoiac with delusions of persecution by means of electricity, which is at all times, night and day, hurled through her body by a vast organization of conspirators. She has hallucinations of hearing. The sisters have not lived together until within six months, the sane sister having recently become a widow. The sane sister is gradually adopting the delusions of the insane one and probably the hallucinations. She believes her sister is persecuted by an organized band of conspirators with electrical appliances, but has not as yet that idea with regard to herself.

A third case was that of a husband and wife, who both became typical cases of melancholia, with, of course similar delusions, one shortly after the other. Such a case as this might be called a coincidence, and not an imposed insanity. Probably grief over the insanity of the husband was one factor in developing that of the wife, but unconscious emotional imitation between two persons united by special bonds of sympathy was undoubtedly another element.

The fourth example I believe to be one of simultaneous insanity. It is the case of two sisters living at present in New York City, and I shall proceed, with their

help, to give an account of their mental infirmities in detail.

C. K. and H. K., now respectively 36 and 42 years of age, teachers of music and singers by occupation, of German parentage, and have both been insane some ten years. Their mother was a case of paranoia with fixed delusions of an exalted religious nature. She believed herself to be the mother of God. She was never in an asylum but lived at home until her death. While insane she gave birth to the younger of the two sisters, C. K. The following sketch of their history written by C. K., one of the sisters, in December, 1888, when I first saw them, will throw light upon their mental peculiarities:

"Many years ago my mother, through the persuasion of my uncle and aunt, emigrated here with her two sons and three daughters. My father, teacher of music and languages, had died in the old country about ten years previous to our coming here. Trouble came immediately through our uncle, a missionary, residing in Brooklyn, who tried to influence the elder brothers and sisters to think mother was queer; so that we were very soon scattered about. Even my mother, through ill treatment, left the house, and I, only five years, was put by strangers. My eldest sister accepted a governess position. * * My brother, utterly discouraged, was compelled to take any work he could get. * * * Here it already shows my uncle's hypocrisy, as he went to the family where my sister was, slandering my brother most viciously. * * * My younger brother had been placed in an institution by the influence of uncle. * * * My oldest sister married five years afterward, and eight years later my mother died. My sister H. and I then became teachers in a school, but were called home at the close of the term by the illness of my married sister. She died in three days, leaving two children, two having died previously. One of the children died four weeks after my sister's death. * * My brother married and asked us to live with him. * * * While with my brother there was trouble with his wife's family from the first day. My sister-in-law already then often said she would put a stop to that music yet, tried her utmost to set my

brother against us. * * Often left without my breakfast, thought would end my life by drowning myself, for had never thought human beings could be so vicious. Our stay with them became such a torture that finally concluded to make a change. * * * We started a private school. * * * Were unsuccessful with the school, as there were already too many in the neighborhood. * * A professor, of whom I had already taken instructions, asked me to take a solo in a cantata, and with three days' notice, many said that I rendered admirably my part, for among forty voices, mine was considered the strongest and sweetest. My sister also was successful in church music. Strangers congratulated us, but our own never said a word. My sister obtained a school position, and I commenced giving piano lessons. * * * My brother-in-law and a friend of his, Mr. R., would seek out our acquaintances and try to run us down. Mr. R. wrote to our landlady that we could rest assured that every step of ours would be traced. * * Thus things went on. It seemed every time when we were just at the point of making an application for a singing position would get sick, for as long as my brother has been married, have been sick with the exception of four months. My sister's health became miserable, so that she had to resign her school position. We employed doctors, our health being wretched. * * We thought it expedient to move from Brooklyn to New York. So we found rooms in 53d street, where we remained only three months, when we moved to 57th street, thence to Beekman Place, from here to 2d Avenue, where we hoped to be comfortable for the winter. Was visited here by our sister-in-law, which reminded me of the expression she used when at her house. She often said: 'I'll put a stop to that singing or music yet!' From here moved to an old acquaintance in Monroe street. Although our health was poor, we spent here some pleasant hours. Have every reason to believe our brother in-law interfered, and have sufficient proof that he inevitably must have had secret intercourse with our uncle. He knew we were competent in singing, for Dr. Damrosch, while trying my voice, several times remarked, 'Wonderful! you must be an American,' for I swelled high C most artistically. * * All this time we had been constantly under the doctor's treatment. Moved to 41st street in 1880, where we remained nearly four years. In

1881, the doctor being discouraged, said he could not do anything more for us. We therefore commenced taking an advertised medicine. Our improvement was so rapid, and felt so happy that we thought we would at last be able to succeed, but it only lasted four months, for upon imparting it to a few friends and relatives we grew immediately worse. Thus time passed on and my brother complained in all his letters of not feeling well, also that he had been poisoned. Naturally we felt very badly. So I decided to call upon my sister-in-law; of course feared nothing from her, as I knew she had wronged us. * * * So after a few weeks we called there. In the course of conversation, she suddenly remarked, 'My husband had to give those papers of your mother to Mr. S. to copy, and I shouldn't wonder if something would come soon.—Yes, I am sure it will. She had not more than expressed, when she almost fell back and exclaimed, Oh, if I only had not told you! I should not have told you!' Thereafter, whenever we asked our brother about the papers, he said he knew nothing about them, that we knew more than he. * * * I remember that whenever I had been at my sister-in-law's house, next day would have swollen limbs. * * * On account of sickness went boarding. First few days improved, but suddenly became so sick (in warm weather my finger-nails turned purple) that we made a speedy change by taking a room again. Took a floor in W. 51st street, but when our things arrived there the doors were locked and we were compelled to seek shelter for the night at my brother's house. * * * Well, we took another floor, but after being there only about six weeks decided to move again, and went to E. 72d street. * * * Here just before Christmas my brother brought a can of maple syrup, of which both of us together had not taken a half-pint, when we felt wretched. As we thought the syrup looked strange, my sister asked the opinion of a druggist who said he thought there were worms in it. * * * For the past four weeks not a bit of heat had come into our room, even when they had a rousing fire, but the last night we were there the register was hot enough to burn ones fingers. Had the windows not been opened wide undoubtedly we should have smothered. Moved to 2d ave. and 51st street. Had a chemist analyze the syrup in May; he pronounced it criminal. * * We had reason to

believe it to be a conspiracy; they want us to be cripples or dead. * * One Sunday our rooms were wholly filled with camphor, which stupefied us, but by taking medicine and going out, we just managed to keep awake. The same evening, when they thought we had retired, but being already prepared by taking medicine to keep us awake, the atmosphere in our rooms became scented, as though we had the choicest flowers. The family not having any such flowers in their garden, knew something was wrong, remained in a swoon for about three hours, tried our utmost to get on our feet to take another dose of medicine. * * * I undoubtedly would have had success in elocution; but I had no more than commenced when my body became perfectly deformed. Our condition became so terrible that we called for Mr. O., who after seeing us said he would find someone to do something for us. Then moved to E. 74th street, where our sufferings continued to such an extent that several mornings we arose looking almost black. * * * From here removed to E. 65th street, where terrible things happened. Our faces became so disfigured that we were compelled to fly to Brooklyn. We had to wear bandages on our faces for the past six months. Later we had to go to New York again for a few weeks in order to escape the worst. Upon our return it was the same. Would go out all day wandering about, coming home in the evening refreshed; as soon as in the house felt choked. Again moved in August. Here have been suffering constantly. Whenever we go through the halls with our faces uncovered, receive terrible blotches of an exceedingly painful nature. Cannot sleep without covering our faces with wet cloths, nor dare we trust ourselves to be in our rooms without having our windows open. Thus if protection is not given us soon, although they might for a short time cease doing anything, they will make it unexpectedly worse. It stands to reason that if capable of doing such vicious things it could be done in such a light form that it would perhaps hardly be noticeable, yet could be just as injurious and even worse than before.

"Having read the enclosed you will perceive that it is a dreadful affair. We shall never have any peace so long as their power continues. We are absolutely excluded from everybody. We cannot even go to church. Whenever we have done so, we grew worse."

From a collection of twenty-five letters written by H. K., since the drawing up of the autobiographical sketch by C. K., I make some further extracts which bear upon their delusions and conduct. The majority of these letters were written to Miss Nellie Bly, of the *New York World:*

"Having read so much of your benevolence for the welfare of humanity, I take the liberty to appeal to you, and request you to have the kindness to do something for us. It seems to me you will perhaps be the only one able to detect and unravel something that has so far appeared a mystery to others. We are two sisters, have taught and studied music, and gave music lessons, have been terribly persecuted for fifteen years, and are yet. * * * We have reason to believe there is a detective in this house." (*Nov., '88*).

"Everywhere we live tricks are played on us to make us unfit to do anything. Do you think that such viciousness is right or should be tolerated in a civilized city?" (*Dec., '88*).

"From the first have been annoyed with various kinds of injurious smoke, which stopped immediately upon informing the landlady. * * * On account of noticing peculiar actions, resolved to watch one evening, and from what we saw, have reason to believe that either there is an expert or the parties in the house have been bought to do these tricks. Next morning after watching, the lady from above stood right in front of me when entering the room, and after a short time noticed that my eye had received a terrible blotch. Also caught her listening several times at our door. This lady in the beginning had brought us flowers, of which the scent of the first bouquet seemed so unnatural that we placed it outside of the window. The day the last bouquet was brought we deemed it advisable to wrap it in paper. * * * About four weeks ago we pasted up a certain door from which smoke issued. There was apparent relief, but after a few days noticed that our clothing closet had such a peculiar odor that we were afraid of wearing anything; whereupon we had every crack filled. The day following our interview with you, at 4:30 P. M., suddenly a strong cigar smoke came into our room, which had the effect of making us senseless. Upon inquiry down stairs ascertained that no one in the house was smoking nor had been since morning. * * * We find we are choked nights, and have

discovered open spaces in the ceiling and in another door. (*Jan., '89.*)

"Suppose you think it strange that we have not yet moved from Brooklyn. * * Assure you it is no easy matter to make a change when certain of being followed. My sister has had to endure a great deal, for her face is all disfigured; also mine is bad enough. * * * They only look out for a good chance to do their mischief, for we know them too well by this time and understand their scheming." (*April '89.*)

"We shall not be able to stand these smokes. What can be done? Our whole room has not been free from the same this morning. Our headaches are terrible. I assure you we will be ruined. Fear very much that we shall have to take the worst step. Pardon haste. Have moved with much difficulty to W. 48th street in New York." (*April, 1889*).

"Both of us have received new blotches again. They intend to disgrace us wherever we live, by compelling us to wear bandages. * * * There must be an instigator in the house, perhaps two or three, who sets all whom he can against us. They throw something at our faces." (*April, 1889*).

"A discovery we made last evening, about a quarter to 10 o'clock, which we think ought to bring everything to light, if only an authority was sent in a secret way to watch, might be perhaps done by sending a smart boy, whom no one could humbug. My sister happened to put her head under the wash-tubs when she suddenly exclaimed, 'What a horrible smell of smoke!' I perceived the same. * * * This work has been going on for four years. * * This is then what makes us look so horrible. They are all sorts of smells combined with a chloral, to bring about the desired symptoms. * * * Constantly someone seems to be around, especially upstairs, working with tools all over their rooms, as if making spaces between the woodwork separating it. * * * They are hammering so softly. They must have a machine by which they can hear and perform at the same time. * * * One evening my sister washed her hair in the water, and it all fell out and has never been the same since." (*May, 1889*).

"Assure you our persecutor is here again. This morning when we arose our whole room was filled with

a fumigated candle smell. They are doing everything and anything to cause weakness and headaches; besides they throw stuff on us which form spots very painful, like corns. * * * They evidently chloroform us, for since we have been here we have had the feeling as though we should fall in a swoon. * * * They put something in the water, for it smelled and tasted horribly. * * * Wanted to go to police headquarters and make complaint, but thought it best to ask you first." (*June, 1889*).

We have here accounts of their disorder from both sisters, an autobiographical sketch from one, and a series of letters from the other, which together show the identity of their morbid mental phenomena. The instigators of the conspiracy against them are chiefly their uncle, brother-in-law and sister-in-law, and a brother has also been inveigled into it. By them are employed numerous detectives, expert chemists and handicraftsmen, and as they have privately hinted to me, also many lawyers. Openings are made in their rooms in spite of all they can do, for the insufflation of noxious gases, smoke, camphorous, chloral and chloroform vapors, and by some unseen agency substances are thrown at them which produce painful cutaneous eruptions. Their food and water and heating apparatus are tampered with, for the introduction of poisons or to produce serious illness. They hear the mechanics at work upon the floors, walls, ceilings, and the voices of the detectives—hallucinations of hearing. Their food has a peculiar taste—hallucinations of taste. Most prominent of all are the singular odors of the room, of food and flowers sent them, of the water—hallucinations of smell. Sometimes they are black in the morning when they look in the mirror—illusion of sight. They are subject to remarkable, generally painful, sensations in their bodies—hallucinations and illusions of cutaneous sensibility.

They hint of imaginary property in Germany, out of which they are being defrauded by relatives. For ten or twelve years they have been driven from one place to another in Brooklyn and New York by their pursuers. As yet they have sought only escape and protection from

persecution; they have very rarely manifested anger, by pounding the floor when hearing the mechanics at work, or by complaint to the landladies, and have not been brought to bay, to a condition in which they might turn upon the actual instigators of the conspiracy and do them bodily harm. They have been on the point of a visit to police headquarters to make declaration against their enemies, and it will be some such climax as this that will probably, ere long, eventuate in their incarceration in an asylum.

From what I can learn of their history in youth the two girls differed from others of their age in a slight degree, some trifling eccentricities and some over-weening self-consciousness constituting this difference. They have always been closely united, living together, sleeping together, having the same affinities, talents, pleasures and pursuits. The development of suspicions and delusions of persecution had been so gradual that it did not become evident to others that they were actually insane until a comparatively recent period. When I first saw them in my office, they came heavily veiled, and upon removing their veils, their faces were patched all over with small square pieces of cloth covering sores. These were only an ordinary acne, made much worse by picking, by wearing wet cloths on their faces all night for the purpose of preventing poisonous vapors from entering their lungs, and by the removal of the strongly adhering pieces of linen from the bleeding surfaces. The scars of some of these sores may be observed in the photographs.* They healed up rapidly when I had prevailed upon them to make use of ung. zinci freely. It will be seen that they have insane physiognomies. The face of the younger is particularly characteristic of a degenerative type, one of its features being a disagreeable prognathism. There are differences between the two heads cephaloscopically, but no great asymmetry. The cephaloscopic drawings are not here reproduced, as the variations of the heads are sufficiently evident from the figures given. The following is a table

* The photographs are not reproduced here for obvious reasons.

of measurements of their heads, made according to the scheme described by me in "Some of the Principles of Craniometry" (*N. Y. Medical Record*, June 23, '88), and which I am in the habit of using for all cephalometrical purposes:*

	Normal female Head. Average of adults, in centimetres.	Head of C. K.	Head of H. K.
Circumference,	53.	53.5	52.5
Volume (empirical),	13.00	13.10	12.87
Naso-occipital arc,	34.	34.	34.
Binauricular arc,	34.	32.5	33.
Antero-posterior diameter,	18.2	18.9	18.5
Greatest transverse diameter,	15.	14.2	14.5
Length-breadth index,	83.8	76.7	78.3
Binauricular diameter,	12.6	11.	11.8
Empirical greatest height,	12.8	13.5	12.9

One is dolicocephalic and the other is mesaticephalic Although some of the measurements are below the normal average for women, a few are above. There is the slightest tendency to leptocephalus, and the binauricular diameter in C. K. is even pathological, as it is outside of the limits of physiological variation (11.6—14.6), and that of H. K. is very near the lowest limit. The greatest transverse diameter is also considerably below the normal average and very near the physiological boundary line (14—17.5).

It is, of course, somewhat difficult to decide accurately whether this example of *folie à deux* is one of simultaneous or of imposed insanity. The fact that C. K. was born during the insanity of the mother, and exhibits a more characteristic physiognomy and a more marked atypy of head, might lead to the supposition that she was the first to be affected, and had by gradual mental contagion, affected secondarily her older sister. But to me it appears that it would more properly be designated a form of reciprocal insanity, *folie simultanée*, and I feel sure that even if they had been separated from the age of twenty a paranoia would have developed in each in the course of the subsequent decade.

*See also "Cranial Measurements in Twenty Cases of Hemiplegia Spastica Infantilis," *N. Y. Medical Journal*, April 6, 1889.

Insanity Proceeding from the Colon.*

By Harold N. Moyer, M. D., Chicago, Ills.

THE term "reflex," as applied to certain pathological conditions, has been so often misused and such erroneous conceptions have been formed under this all-embracing title that we confess to a dislike of the term, and only consent to use it in its most restricted sense. One has only to refer to the vast number of surgical procedures relegated to oblivion to emphasize the erroneous conceptions regarding the reflex nature of some nervous disorders, clitoridectomy, circumcision, even castration, and lastly oöphorectomy, which we believe to be still somewhat in fashion. Scarcely a portion of the body or organ has escaped, and the recent literature from the pens of those who devote special attention to the diseases of a single organ is filled with cases illustrating the potency and power of the particular organ which they treat, to cause reflex nervous disorders. The ophthalmologist not content with his reflex headaches, neuralgia, etc., has recently added epilepsy to the list, the rhinologist has appended asthma to the pharyngeal tonsil and a homœopathic surgeon has recently begun to dilate the anal sphincter and scrape out the rectum for almost every disease from hemorrhoids to alopecia. The colon has thus far largely escaped, not through want of importance, but solely because no one seems to have devoted special consideration to the diseases of this organ. The "colonologist" belongs to the future.

So far as my knowledge extends, the earliest writer to call attention to the colon as a reflex cause of insanity was Schroeder van der Kolk. It formed no mean division of his order of sympathetic insanities, only yielding in importance to the uterus and sexual parts. He

* Read before the Chicago Medical Society.

regarded the trouble as a true reflex, an irritation beginning in the peripheral endings of the sympathetic nerves, propagated to the vasomotor supply of the central nervous system, and their working disorder principally in the circulation. In these days of germs and ptomaines, a more acceptable theory to many will be that we have in these cases a true auto-infection; an addition to the blood of noxious elements, which, circulating through the nervous system produce toxic effects. It is probable that both theories have an element of truth. In some cases there may be a direct poisoning of the blood while in others the disorder may be purely reflex in character.

Van der Kolk was himself affected with this disorder. While suffering from constipation and fatigue from overwork, hallucinations and phantasms appeared to him and continued for three days; a large clyster was administered which was followed by a copious evacuation of foul smelling fecal matter. Immediately the hallucinations disappeared and his mind became tranquil. There are no distinguishing symptoms of this condition but an intellectual disturbance which, having its origin in this source, is said by Van der Kolk to be characterized by a peculiar depression of spirit, by anguish of mind, and by the patient's self-accusations of wickedness and baseness. The disease has a very slow course and generally the mental anguish has existed some time before the physician is consulted.

Whatever view may be taken of the basic pathology of these conditions, there can be no doubt of their ætiological relations, and additional emphasis is laid upon the necessity of thoroughly investigating possible sources of reflex irritations in all functional nerve disorders. The following cases illustrate the gravity of the disturbance which may follow disease of the colon, and the necessity of a more careful inquiry into the condition of that organ:

Case I.—July 17, 1887, I was summoned to an adjoining

city to see Mrs. G., in consultation. The attending physician furnished me with the following account: Father of patient living and well; mother died of cancer of the uterus. No trace of insanity in the family, or neurotic heredity of any kind. Her health previous to the present difficulty had been fair, an occasional cough, with inflammation of the pharynx, being her only illness. Menstruation appeared at fourteen, and was always normally performed. Married at twenty-three, and at twenty-five had a premature labor, this accident not being followed by any disturbance of the general health. Present illness began about eighteen months ago, and was marked by an increasing general debility, loss of appetite, decrease in weight, and obstinate constipation. The symptoms did not point to a change in any particular organ. Six months later, had sudden attacks of fainting, occurring at irregular intervals. These attacks would begin with pain in the left hypochondrium and a sense of suffocation. Within the last six months, tenderness on pressure has appeared in this region, and the attacks have become more frequent, and are accompanied by vomiting. During this time she had no febrile reaction, but was nervous, excitable and affected with morbid fears. This was substantially her condition until three months before she came under my observation, when she began to show positive signs of insanity, was restless, sleepless and incoherent, with confusional hallucinations and non-systematic delusions of a depressed and melancholy character.

Examination of the patient shows the muscles and fatty tissues wasted to the last degree. The flexor tendons of the thighs are contracted, so that the legs cannot be extended. The skin is of a dirty brown color, and covered with branny scales. Eyeballs prominent, pupils react normally. Ophthalmoscopic appearance of fundus normal. The heart, lungs, kidneys and sexual organs were carefully investigated, and nothing abnormal noted. A line of superficial dullness could be made out, extending transversely across the abdomen, on a level with the umbilicus, and a lobulated mass could be felt in the left inguinal region, but it could not be distinctly outlined. The temperature was normal. Pulse weak and variable, from 120 to 140 per minute. The mental symptoms were substantially those which were described as existing for the past three months.

A diagnosis of an exhaustional confusional form of insanity, proceeding from a dilated and over-filled colon, was made. Large rectal injections were ordered, containing in each pint of water two ounces of listerine and drachm of common salt. Tonics were also ordered with cod-liver oil inunction, massage and general faradisations.

The subsequent history was furnished by the attending physician.

July 19th. Condition unchanged, absolutely refused food. Insisted that her brother had been recently killed.

July 20th. First injection given, consisting of about two pints. The tube was passed well beyond the sigmoid flexure. In about an hour the injection came away and with it a considerable amount of fecal matter. Upon withdrawing the tube, its distal end was found to be coated with dark, waxy, adhesive fecal matter, entirely unlike that which came away. After the injection the patient passed into a quiet sleep, from which she awakened after about two hours, and called for food for the first time in many weeks.

July 21st. Marked improvement; pulse 100. No fecal masses came away with to-day's injection, but the tube is still coated as at first, showing that a mass is still retained. Mind perfectly clear and tranquil.

July 30th. Continued improvement. Since beginning the treatment ten rectal injections have been given. Occasionally a dark, hardened fecal mass comes away.

August 14th. Able to be out of bed, but walks with great difficulty, owing to the muscular wasting. Mind perfectly clear, but retains only an indistinct recollection of the time of her illness. For the past two weeks her bowels have acted without cathartics, and her appetite is excellent.

November 20th. No longer suffers from constipation, and her health is better than it was before her illness.

An account of a striking case of this kind was sent me by my friend Dr. H. M. Bannister, Senior Assistant Physician to the Illinois Eastern Hospital for the Insane.

Case II.—The patient, a panophobic melancholic, with suicidal tendencies, had refused food for months and had been fed artificially. He seemed too weak to walk and

was sent to the infirmary ward, where the attendant noticed that he had no free passage from his bowels. A large injection was ordered, which freed him of an immense quantity of feces, which he had been keeping in store and letting off by driblets. Within an hour or two, during the momentary absence of the attendant, he got up, dressed himself, broke out through a window and made his escape. He eluded a very thorough search, and was only heard from sometime later, when he wrote a perfectly straight letter for his clothing.

Case III. was that of a young man 30 years of age, having a marked neurotic heredity; his mother is now insane. Of nervous temperament, but of previous good health and strength. He consulted me for what he termed a marked change in his character and habits. From being cheerful and contented, he had lately become morose, suspicious of his fellow-workmen, fretful and inclined to quarrel and to take offense. These mental symptoms had been accompanied by loss of strength, decreasing weight, failure of strength, general debility, loss of appetite, and a disinclination to exertion. An account was given of irregular action of the bowels extending over one year. At times constipation and again several watery discharges, to be succeeded by a period of inaction. A copious rectal injection relieved him of a large mass of dark, tarry, consistent, foul-smelling feces; with this came a complete restoration of the normal mental tone.

Regarding the treatment of this condition I incline to the view expressed by Van der Kolk, who says (page 134, *ibid.*): "All remedies which act as violent irritants of the colon, the so-called drastics, only increase the tendency to stricture; they add to the sensibility of the colon and the accumulation of blood in it, and cause watery stools, while the hard masses in the upper portion of the large intestine still remain. The disquietude, the excitement, and the uneasy feeling of the patient are thereby increased, but the strength is diminished if these medicines are continued for any length of time; the circulation becomes more and more irregular, the radial pulse becomes small, and the limbs cool."

The first case is instructive in this regard. The con-

sulting physician whom I met, with the attending physician, said the diagnosis was an absurdity, because the patient had been given cathartics, causing repeated movements of the bowels, and they always made her worse, increasing the weakness and mental aberration. He incontinently withdrew from the case upon learning that the attending physician agreed with me.

In ordinary constipation, where there is simple atony of the bowels, laxatives may be indicated; but where there is a true over filling with distension of the pouches of the colon, cathartics are of little use, and may be positively injurious.

Forensic Relations of the Puerperal State.*

By Harriet C. B. Alexander, M. D., Chicago, Ill.,

Late Assistant Physician Cook County Insane Hospital.

THE mental state of the puerperal female has not received the attention its forensic importance merits from lawyers and physicians, owing to the erroneous lay opinion, shared by many members of the medical and legal professions, that pregnancy is now, what it once was in the history of the race, a normal physiological process.

Pregnancy, if regarded in this light, stands alone, since no other physiological function presents the pathological phenomena: pulmonary, cardiac, gastric, renal, cystic, nervous and other disturbances, characteristic of pregnancy. Even "labor," that terminates pregnancy, is characterized by the pathological phenomenon "pain." It is illogical to speak of a condition in which pain is present as a physiological state. Pregnance, unattended by pathological phenomena is the rare exception, so rare that it may well be doubted whether these cases are properly observed, since too little attention is paid to nervous and mental phenomena, that do not reach the diginty of paralysis, spasms, contractions, amaurosis, amblyopia, odontalgia, hallucinations, delusions, maniacal outbursts or furor. That pregnancy at one time was a purely physiological process may be admitted; that it now is, no one but a *doctrinaire* will claim after careful examination of the subject.

Many causes have contributed to transform this originally physiological state into a pathological one.

Dr. Clevenger most ingeniously points out, for example, that "if we are to believe that for our original sin the pang's of labor at term were increased, and also believe in the disproportionate contraction of pelvic space being an efficient cause of the same difficulties of parturition, the logical inference is inevitable that man's original sin

* Read in outline before the American Medical Association in 1837.

consisted in his getting on his hind legs." To this original sin of assuming the erect position have been added the effect of atrocious modes of clothing, feeding, housing, employing and training one part of the race, which have checked their pelvic development, while other forces have augmented the cephalic development. From almost the beginning of the race forces have been at work which have decreased woman's usefulness, purely as a woman, and made her, man's embryological superior, his actual inferior in the struggle for existence.

The Teutonic races, in which woman held a high place, have too often accepted the Latin doctrine, that there was nothing more than woman's caprice in the mental state of the pregnant woman, and have held her strictly responsible for the results of what their public opinion held to be a pathological state.

As Ben Jonson's plays show, Anglo-Saxon popular opinion regarded the pregnant woman as irresponsible for her "longings;" a most natural and just view, since, on careful analysis of the mental condition of the pregnant woman, it is apparent that this is always affected by more or less morbid perturbations of the (monarchical) cerebral vasomotor center, secondary to: *first*, to pelvic fluxionary changes; *second*, to irritative conditions; *third*, to conditions of exhaustion; *fourth*, to pressure neuroses of cardiac, pulmonary, gastric, visceral or peripheral neurio-origin. These factors of disturbance are always present in the puerperal state. I include the period from conception to the termination of early lactation.

The circulatory condition of pregnancy, as Cazeaux and others point out, is essentially that of chlorosis, which has been shown to be a tropho-neurosis by Dr. Hammond. The irritative conditions result from the general nervous and circulatory disturbance of which this circulatory neurosis is the expression, and are secondary to local and general inflammatory states, tears, erosions, displacements, etc. The conditions of exhaustion originate from the conditions last described, and are often secondary

to severe or prolonged labor, lactation, too frequent pregnancies, poverty, and, in the abandoned and seduced, to the nervous agitation resulting from the surroundings. The mental changes consequent in fluxionary pelvic changes are emotional mobility, depression, abulia, varying from simple apathy to extreme loss of will-power, or destruction of the logical inhibitions which render pregnant women subject to undue influence, to morbid suggestions and to pure imperative conceptions. Emotional mobility leads to infanticide through accidental neglect. Apathetic abulia has the same consequence, since it weakens the natural affections. Abulia readily leads to infanticide through a paramour's suggestions, by the perusal of child-murder cases, morbid suggestions, cannibalistic sexual furor and pure imperative conceptions.

Depression, a potent cause of infanticide in some patients, much more often leads to it in the pregnant, whose will and natural affections are blunted still more by the puerperal state. The mental conditions resulting from the causes mentioned are, as every obstetrician and pregnant woman will admit, peculiarly destructive of the free determination of the will.

In all Teutonic countries when popular prejudice has not intervened, it is still held that there is no criminal act where the actor at the time of the offense is in a state of unconsciousness or morbid disturbance of the mind, that prevents free determination of the will. According to this rule the admitted mental consequences of febrile fluxionary changes are amply sufficient to compel the State to demonstrate beyond doubt that free determination of the will of the pregnant or just delivered woman has not been impaired. These pelvic fluxionary changes are, as has already been pointed out, not the only influence at work. Abulia, the result of disturbance of the emotional balance, one of the most common and distressing of mental states, is produced by any or all the conditions mentioned. It may vary from slight weakening of the logical inhibitions to states where they are in complete abeyance. Women

otherwise seemingly healthy complain of the lack of will-power or "energy" and find great difficulty in controlling themselves. In all conditions in which the will or logical inhibitions are impaired imperative conceptions arise, sometimes of pure type, sometimes suggested by morbid sensations. From these conditions also results that capriciousness which characterizes the puerperal state. Beside this caprice, emotional mobility and abulia produced by all the pathological factors mentioned, the local effects of these factors peculiarly modify the mental state.

Pressure on the heart, lungs and stomach engenders suspicional mental states, which create delusions of persecution, accompanied by ideas of poisoning and impaired appetite (of pulmonary, cardiac or gastric origin); or of strangling and poisoning (of cardiac and pulmonary origin). Pressure on the peripheral and visceral nerves sets up various types of hyperæsthesia, which persist long after the original pressure is removed, and tinge the mental state. It hence creates erotic and suspicional mental states. Any physician of extensive practice will remember cases varying from slight eroticism, just beyond the patient's control to the openly expressed eroticism of puerperal insanity. The various "longings" of the pregnant woman arise from imperative conceptions, either pure or dependent on perverted sensations, or from reversions to early habits of the race during reproduction. So long as these longings were of trifling character their morbid nature would not be disputed, nor considered worthy of thought; but let a pregnant woman kill and eat her husband, or a newly-delivered woman, in that peculiar frenzy for blood that arises from perturbed sexual states, kill her child, and these ludicrous longings furnish a psychological key to such actions of great forensic importance. Every woman during the pregnant state is, it will be obvious, subject to influences that weaken her will, engender emotional mobility, render apathetic natural affection, and give rise to ideas of suspicion as well as to perverted sensations and propensities.

Legally these mental states predispose to murder, infanticide, nymphomania, arson, sanguinary cruelty, dipsomania and kleptomania, either pure or resulting from a desire for possession dominating a weak will. The literature is full of illustrative instances. When a well-to-do puerperal woman steals the public authorities willingly admit the plea of kleptomania ; but when the poor, hunted, seduced woman steals she is too often treated as a criminal. If a married woman kill her new-born child, no jury will convict her. Let a seduced and abandoned girl do the same, and a public example is demanded (*pour encourager les autres*). Yet in this last case the power of self-control is much more weakened, not only from the puerperal state but from other moral effects engendered by seduction, desertion and dread of exposure. This is arrant injustice, that can only be defended on the tyrant's plea of necessity for the protection of society, a plea, as history shows, based on ignorant prejudice. Severe penalties never decreased infanticide, since the seduced infanticide never could appreciate the bearing of these penalties. This was well illustrated by Goethe, who never drew a truer or more pathetic picture than that of Margaret, about to be executed for an infanticide springing from the perturbed mental state clearly evident in her last interview with Faust.

In conditions of doubt, justice leans to the presumption of innocence. From what has already been said it must be evident that the mental state of the puerperal woman is a dubious one. In Illinois it would be sufficient to make the claim that the mental condition of the puerperal woman was unsound, and the burden of proof would immediately fall on the State, in obedience to the old legal presumption of innocence in every man. In Indiana and New Hampshire the same just doctrine is held. Mental states are matters of fact, not ideal creations of law. It is sad to say that in the majority of our States the burden of proof falls on the prisoner in all cases in which insanity is a defense, and what insanity

is, is determined by legal tests set up decades ago under pressure from English precedents. Barbarous as these legal doctrines are, they are held in California, Delaware, Kansas, Georgia, Maine, Massachusetts, Missouri, Minnesota, New York, Ohio, Pennsylvania, Texas, Michigan, Mississippi, Nebraska, New Jersey, North Carolina, Tennessee, Kentucky, and the Federal Courts.

These cruel absurdities have their natural results. Judges unable to rid themselves of legal superstitions, resort to subterfuges to avoid enforcing the alleged law in cases in which crime was the offspring of insanity not covered by the legal definitions. In the infanticide case of "The People *vs.* Kate Harvey"* expert testimony was not introduced until after the jury had convicted the prisoner; but the judge allowed the mental condition produced by the puerperal state to mitigate the sentence. The absurdity of such procedures is well summed up by Judge Doe, of New Hampshire. "If tests of insanity are matters of law, the practice of allowing experts to testify what they are should be discontinued. If they are matters of fact the judge should not longer testify without being sworn as a witness and showing himself qualified to testify as an expert."

In dealing with any forensic question the physician's first duty is to determine whether such a thing is a fact, not whether it might under certain supposable conditions have a bad effect in society. Once ascertained to be a fact, it is his duty to declare it such. In this spirit I have striven to prove that in crimes committed during the puerperal state the burden of proof lies on the State, since the alleged criminal suffers from a pathological state predisposing to violations of major and minor morality. The law, in its assumption that every one is innocent, regards crime as an unusual state, and this presumption of innocence is strengthened if the state of the alleged criminal predisposes to unwilling violations of morality.

* Alienist and Neurologist, 1885.

The Unexpected in Drunkenness. A Study of Inebriate Responsibility.

By T. L. Wright, M. D., Bellefontaine, Ohio.

IN viewing the effects of alcohol on human nature, the great fact should always enter into consideration—that alcohol, in appreciable quantities, invariably produces paralysis in some degree, great or small, in every organ and function of body and mind.

It is not the present purpose to discuss, distinctively, the facts relating to the nature of the alcoholic impression upon the rational faculties; nor is it intended to dilate upon the power of alcohol to derange and confuse mental function by enervating the cells of the brain and injuring the physical structure of the centers of intellectual exposition. Neither is it the design to enlarge on the disabling and degenerative processes inaugurated by alcohol in the nervous organism that ministers to the moral nature, and follow the decadence and extinction of that nature, as alcohol strangles and destroys it. These points have been discussed by the writer, somewhat at large, elsewhere.*

The subject for inquiry in this paper relates to a peculiar property of alcohol, through which certain great component parts of the human organism are thrown out of functional harmony with each other. These parts are, for instance, so impressed by the alcoholic influence that the activity of the body as a whole is not unified. One essential portion of the physical structure fails to act in a common direction with another portion—or with other portions. This failure may become apparent in several ways, as, for example, with regard to coincidence in the

* See "Inebriism, a Pathological and Psychological Study." Also numerous papers in the Medical and Legal journals.

time, or in the order of movement; or with respect to normal correspondence in the degree of force employed, etc. Such incoherence of action amongst the several component parts of the human system is so very important in its effects, and also so liable to become the subject of unjust criticism and false conclusions, that some facts, illustrating the points in discussion, may be submitted with profit:

First. A gentleman, laboring considerably under the influence of liquor, but apparently not very seriously disabled in his movements, took it into his head to examine the condition of a shotgun. This he proceeded to do in the presence of his family and in spite of the remonstrance of his wife. The gun exploded in the man's hands and the charge passed harmlessly into the wall, a couple of feet above the floor. The gentleman declared that the weapon absolutely "went off itself." He stoutly asserted that it was an accident for which nobody was to be blamed. He protested that he was raising and lowering the hammer of the lock with the utmost nicety and caution, when the discharge occurred without any conscious agency on his part.

This happened many years ago, and yet this is the feeling and recollection in the mind of the chief actor at the present day. He was astonished and bewildered. "The gun went off itself." But in truth, this was a good gun. The lock had always operated satisfactorily prior to this event, and never subsequently gave any trouble.

Second. Several years ago a man of good intelligence, at night and in a room with his wife only, and being in a state of considerable intoxication, was seized with an urgent desire to investigate the probable efficiency of a loaded pistol. The weapon was a Smith & Wesson revolver in perfect order. It exploded in his hands. The ball flew near to his wife's head and entered the side of the room behind her.

The man was perfectly astounded. To his mind it seemed that the pistol exploded without the intervention

of any rational agency. He had no mental intent or bodily sensation that could possibly be associated with the production of the explosion.

No special harm was done, and there was no inquiry into the particulars of the "accident." But had the ball wounded or killed the wife, there would have been a very serious investigation indeed. There was, as a rule, perfectly good feeling between the man and woman. Yet it is true, that the habit of drinking to occasional excess, had called forth remonstrances from the wife, and bickerings and disagreements from that cause had several times occurred. Under these circumstances a charge of murder might reasonably have been made, had there been a fatal outcome to the shooting.

Third. In the "early times" of Western Ohio, one M———, while in a state of intoxication, felt called upon to load a pistol in the presence of his married sister, while visiting at her home. This man, M———, was noted far and wide for his kindly nature and impulses. He was a hunter by profession, a common business in those times. He was well acquainted with fire-arms, having handled them from boyhood up. Nevertheless, the pistol "went off" in his hands. The bullet penetrated the side of his sister, who exclaimed:

"I am shot! but I forgive you if this will cause you to let liquor alone!"

She died in a few hours, only to be followed in a brief period of time by the brother, whose grief and remorse led him to drink deeper than ever.

This was clearly an "accident," and it was so accounted by everybody acquainted with the parties.

Fourth. To render the picture more conplete, another example will be given.

A young man shot with a pistol and killed a woman (not his wife) who was riding in a buggy with him. He claimed that the shooting was an accident. No witness saw the deed. An effort was made to show that the

killing was without intent. The man was slightly intoxicated. Testimony, to the effect that in handling a pistol, a person while intoxicated would be more likely to explode it by accident, than one would be when not intoxicated, was given.

But it was proven that the pistol was taken upon his person by the accused, while he was in a perfectly sober condition. A number of circumstances were also brought to light relating to his conduct subsequently to the tragedy, which tended to establish the existence of a criminal intent.

This man is now in the penitentiary at Columbus, Ohio, suffering the penalty of his crime.

These examples illustrate the *unexpected* in drunkenness. A study of the facts recounted above will reveal the reasons for their occurrence, and will show the impossibility of foreseeing them and providing against them.

There are several situations peculiar to the drunken state, a knowledge of which is necessary to an explanation of the surprising events that, not uncommonly, are associated with it.

Two of the essential conditions of drunkenness are of such great moment in affording this explanation, that they are worthy of special attention.

Ordinarily, when there is an *intent* to commit crime—and especially crime at home—there will most likely be certain preliminary arrangements made, which will go far towards proving intent. The mere fact of choosing to handle fire-arms in the presence of the family, may be considered as evincing a subtle intent to use them. A man in his right senses and duly sober is not apt to critically examine deadly weapons in the midst of the home circle.

First. Delusions of grandeur often* constitute one of the essential conditions of drunkenness that contribute to the unexpected. A person in a certain state of intoxication

* The acute mania of drunkenness is apparently not without some of the features of dementia.

is prone to be filled with a morbid self-sufficiency. He is possessed of an overweening and, indeed, insane confidence in the magnitude of his own powers. He imagines that his judgment is infallible, while he has no misgiving as to the agility, accuracy and strength of his bodily movements. He claims and believes that he is absolutely right in all things, and that in whatever he undertakes there can be no failure.

The imagination of such a man is filled with an audacity that is rash and foolhardy. He is arrogant, presuming, pot-valiant, impertinent and meddlesome. No one can instruct—nothing can daunt him. He is, in fact, clothed in the deceptive armor of alcoholic paralysis, which seems to him to be impenetrable. He is insensible to pain, and therefore to fear. He conceives himself to be wonderfully adroit in every device of mental and bodily movement.

In his own estimation he is imbued with new and superior powers, and is placed beyond reach of the shafts of adverse fortune.

This is the man who madly persists in trifling with deadly weapons in the presence of others, and yet may be wholly innocent of any intent to do harm. Of course a man in such a condition of mind is dangerous, both to himself and to others. The *unexpected* will happen, and it too often will assume the form if not the substance of crime.

This is a phase of intoxication which may be described as that peculiar trait in drunkenness which invites—nay, impels the inebriate to undertake labors that are totally beyond the capacity of his nature to accomplish.

The handling of deadly weapons, therefore, by a drunken man is not, necessarily, evidence of criminal intent. It is quite likely to be the effect of an illusory contemplation of powers in self which have no existence in fact.

Second. Paralysis of sensation (anæsthesia), consti-

tutes another important condition of drunkenness, which very often tends to promote the occurrence of the unexpected.

Because the drunken man cannot feel, he imagines there are no fetters, at least not for him. Paralysis envelopes and binds him for all that in every department of his nature. Does he foolishly tamper and meddle with fire-arms? His hands possess but little sensibility at best, and they necessarily fail to detect any slight impression made upon them. He presses unconsciously upon the trigger, and no feeling of that pressure is conveyed to his mind. The weapon explodes, perhaps carrying death in its consequences, and no conception of the cause may be possible to the inebriate mind, except the erroneous one that the explosion was due to some hidden defect in the lock. It requires a considerable effort, a firm pressure of the hand, to convey to the benumbed and paralyzed brain the idea of the exercise of any sensible force whatever.

There is, therefore, in drunkenness a disturbance in the normal relationship that should subsist between the several essential departments of the human organism. *The brain and the hand—the mind and the body—do not act harmoniously.* There is disorder and confusion in that symmetry of function throughout the body, that is necessary to secure rational ends. The unexpected often occurs, while, not infrequently, that which is expected cannot take place.

And here the fact becomes plain, that the paralysis of alcohol not only impairs sensibility and the senses in detail, but it deranges and disorganizes the unity of functions that should characterize the prominent divisions of the human body. Movement, reason and motive are not in proper accord one with another; and conduct is often unexpected, because it is beyond the pale of recognized law.

In the unexpected arising from drunkenness, there are two prime factors which may have a certain significance in a Medico-Legal sense.

First. The morbid self-exaltation of the drunken mind, by delusive misinformation as to facts, and illusory misconceptions as to its own powers, impels to a line of conduct out of relation with the fitness of things, and beyond the capacity of the physical organization to control.

Second. Alcoholic paralysis impairs not only the sense of feeling but also the co-ordinating activity of the several great component structures of the human body, so that community of action and unity of purpose amongst them are always difficult and often impossible.

Atypical Myotonia---Non-congenital?

By Alexander B. Shaw, M. D., St. Louis,

Prof. of Diseases of the Mind and Nervous System and Electro-Therapeutics, Beaumont Medical College, etc.

CASE RECORD.

By A. W. Fleming, M. D., St. Louis.

Physician to the Poor-House Hospital.

THE patient, Jos. McEvoy, is 23 years of age, born in the United States, single and a silver miner by occupation. He is one of a family of three, his two sisters being alive, are healthy, never having been subjected to any nervous disorder or any other constitutional disease. The father of this patient was one of eleven, seven boys and four girls. He (father) ran away from his home in Ireland when fourteen or fifteen years of age, came to America and finally settled in California. His people were all factory workers, patient thinks, in woolen mill. After going to California he soon got married and then followed running, gambling, etc. He was a constant drinker although rarely became intoxicated. His wife was a German-American of strong and robust constitution, free from all nervous disease, enjoying good health up to little over one year ago, when she became ill and died of pneumonia.

Our patient was placed in the mines when quite young, eleven or twelve years of age, and followed that occupation almost constantly until he was attacked with his present nervous ailment, which was about two and one-half years ago. Previous to the development of his present condition his health had been most excellent, he never being confined to bed more than a day at a

time in his life. He has a few times been too indulgent in alcoholic beverages, but never was a constant drinker. He once had urethritis of about a fortnight's duration, never had any other venereal disease. Has had no injury of a serious character. When a boy he was placed down in a damp mine to drive mules, but after growing older he went into the silver mill, or as he called it, "lixiviation plant." Here his work was that of watching the roller, to keep it from being choked by the ore that was undergoing the leeching process. To the ton of silver ore there is placed about fifty pounds sodium chloride, twenty-five pounds of some of the lead salts, patient says the sulphide. The dust produced by this work is so abundant and irritating to the bronchial mucous membrane that sponges over the nose and mouth are constantly required. One night while engaged at this work (he was employed on night tour), his left arm commenced twitching, the muscles then contracting, his arm was drawn upward, to the right and against the chest; this act occupying about one minute's duration. While at breakfast the following morning the same clinical symptoms were again manifested. For he six weeks following there was a repetition of the same condition, generally occurring two or three times daily. During this time he continued at the same work.

But now the disease assumed a more progressive form. The lower limbs became involved, first the left and a few days later the right toes turned under, the great ones excepted, with tonic contraction of the muscles on the posterior aspect of the legs and thighs. The muscles too of articulation became impaired, with spasm of the œsophogeal and pharyngeal muscles and nearly constant rigidity and stiffness of the muscles of the neck.

The patient thinks four months elapsed from the initiatory symptom until the disease assumed its present degree of development. Since that time no marked change, from what we now have, has taken place; sometimes for three or four days he walks better, but

again returns to his former condition without now any seeming progress of the disease.

In observing this case that which attracts one as being the most characteristic element in the patient's peculiar ailment is his utter incapacity to properly manipulate his limbs, or a loss of co-ordinating ability when any volitional act is required from him; nor is this due, as will be seen on physical examination, to any apparent loss of structural element, as we find all the muscles full, rounded, firm on palpation, and testing of the muscular strength shows no appreciable deficiency. This total loss of manipulative power is of short duration, as may be seen per examination. If the patient is told to stand on his feet he will look first as to his position. If his legs are well under him, he then attempts standing, but if not you will see the blood going to the face in conjunction with a tonic contraction of the muscles in the neck, left arm and both lower limbs, and then the legs are brought gradually and steadily under him. Now he attempts raising himself to a standing position. In this he sometimes succeeds, and again will totally fail; the failure being due usually to his feet, one or other of which losing its hold on the floor, allows the leg to fly forward and upward to nearly right angle with that of the trunk, when it is necessary for him to relax his effort at rising, bring his arm down, grasp the leg, and use nearly all his force replacing the limb on the floor again. After gaining an upright position he attempts locomotion. This at first is slow and awkard, for in raising the foot it may fly out too far, giving him a hard fall; but usually, by the use of a cane, he keeps the leg under control. Having made three or four steps the muscular stiffness or rigidity lessens and movement becomes more satisfactory, although he still shows impaired and peculiar movements. When the legs are tensely extended on the thighs he experiences considerable pain, yet quite an amount of stiffness may be present without there being any algesic symptoms, although any gross movement

usually produces more or less pain. The muscles, under contraction of the extremities, are very hard, firm; contour rounded, and show good development. Some of them I have never seen entirely relaxed, not even during sleep. The toes on the left foot, excepting the great one, are all the time, and the right part of the time, flexed. The great toes are in a state of extension.

The muscular tension is not alone confined to the extremities, for at times the muscles on the posterior aspect of the neck contract, drawing the head upward; or again, lateral contraction may produce lateral deflection. The lower maxillary muscles are also implicated, and he has learned from experience that it is an unsafe procedure to protrude his tongue, for in doing so he has several times had it lacerated from the jaw muscles suddenly contracting. Besides the tonic contractions with general muscular stiffness, there is noticed at times wave-like or fibrillary twitchings showing themselves over the thighs, facial and pectoral regions. These are not frequent, and rarely show themselves unless the patient has been more than usually excited, or long kept under nervous tension. The right arm has never been but slightly involved, so little that the patient thinks none at all; but the finer movements are evidently somewhat impaired, as is shown by requiring quick muscular action from him, as in writing. Food is carried to the mouth with the right hand, and it is his main support in getting about. There has never been any impairment of the sphincter muscles, but deglutition has been obstructed as well as free breathing, by pharyngeal and laryngeal contractions. Speech is much involved, many words are unutterable, while others are pronounced in a hesitating, muffled and almost unrecognizable manner; or again, he may stutter before getting syllables articulated. In this symptom I think there is a steady progression. The pupils react normally, but the balls move slowly in the orbits. The patient's weight has remained nearly uniform, he being now little lighter than when the disease became

established. The patient is a large eater, requiring usually more than twice the amount of food that one in usual health would consume, and digestion has not been impaired by this excess. This increased amount of food is no doubt due to the excessive muscular expenditure, which, in part may produce the profuse perspiration. During the summer months this was very abundant, often saturating his clothing to completion in a few moments. Unpleasant emanations are not present from this excessive ephidrosis. About two and a half months ago there was a marked exacerbation of all the muscular contractions, with severe pain in the limbs, frequent attacks of emesis, loss of sleep, emaciation and rapid prostration. This condition lasted for ten days, nothing tried relieving him, except tr. hyoscyamus. This patient, among others, was suspended by the Shaw method, but in his case without seeming good results. Sensation and reflexes normal. There is some mental impairment, this showing itself by irritability and peevishness; or again, by melancholy, he too becomes suspicious of anything or any person that he is not familiar with. There does not appear to be any increase or diminution of the patellar or other reflexes, although on account of the spasms being so easily originated this point is not entirely satisfactory to the examiner. Tactile temperature and pressure senses are not demonstrably impaired. Lordosis is prominent, with some protrusion of the chest. Physical examination of thoracic and abdominal viscera shows no abnormality other than some subcrepitant and mucous rales that are confirmatory of bronchial trouble, of which he is now complaining.

The foregoing admirable report of this case was prepared by Dr. A. W. Fleming, and read by him at the meeting of the St. Louis Med. Society, held Nov. 16, 1889, when we first presented the subject, J. McEvoy.

Examinations made subsequent to the preparation of the clinical history show an absence of fixed relationship between Ca.C.C. and An.C.C. as in the case of Jacoby, and the presence of closure tetanus, without anodic opening contraction with as strong a current as could be borne by the patient, *i. e.*, 50 cells of a but little used J. A. Barrett chloride of silver (dry) battery, and but very slight cathodic opening contraction, corresponding very closely with the results of voltaic examination in Dana's case.[1]

In the right arm and leg the An.C.C. was greater than the Ca.C.C., as was noted in one case by Vigouroux, while in the left arm the Ca.C.C. was greater than the An.C.C.

One electrode being placed over the sternum and the other over the musculo-spinal nerve (right arm), where it winds around the humerus, gives the following formula: An.C.C.> Ca.C.C.> Ca.O.C., No. An.O.C. with 32 cells. Electrodes similarly placed on left side give the following formula: Ca.C.C.> An.C.C.> Ca.O.C.—No. An.O.C. with 50 cells. One electrode placed over the sartorius and the other about the inner maleolis (R. Leg), gives the following formula: An.C.C.> Ca.C.C.> Ca.O.C., No. An.O.C. with 50 cells, a tolerable strong faradic current passed directly through the left biceps produced a peculiar slowly developed, frequently recurring contraction and relaxation of a fasciculus as large as one's finger on the inner margin of the muscle, wave-like in character, occurring at the rate of about one contraction to each two seconds. The relaxation of the whole muscle after contraction from the faradic current seemed to be somewhat retarded or slower than normal. This corresponds exactly with what was noted by Vigouroux[2] in the case of Ballet and Marie in 1883.

The orginal memoranda of results of galvanic examination is as follows:

---

[1] *Med. Record*, April 21, 1888.

[2] "Archives de Neurologie," 1883.

R. Arm.—Ca.C.C. Slight, with 12 cells; marked with 17 cells.
An.C.C. Twice as marked as Ca.C.C., with 17 cells.
Ca.O.C. Very slight, with 32 cells.
An.O.C. None, with 32 cells.
L. Arm.—Ca.C.C. Slight, with 12 cells.
An.C.C. Slight, with 17 cells.
Ca.O.C. Marked tetanic in character, with 26 cells.
An.O.C. None, with 50 cells.
R. Leg.—Ca.C.C. Very slight, with 23 cells.
An.C.C. More marked than Ca.C.C., with 23 cells.
Ca.O.C. Unsatisfactory because of tremor induced in limbs.
An.O.C. None, with 50 cells.

Examination with the æsthesiometer demonstrated non-impairment of sensation.

Examination with the dynamometer shows a squeezing force of 20 kgms. for the right hand, and but 10 kgms. for the left hand; with the patient sitting, his legs extended, and feet supported by a fixed point, he developed a pulling force (or lifting force, back muscles being exerted when in this position) of 70 kgms.

Dr. Fleming calls attention to the slowness of movements of the eyes. By placing a cork between the patient's upper and lower teeth it was also observed that lateral movements of the tongue could not be made as rapidly as is normal.

The opening and closing of the right hand could be effected quite quickly, and with apparent ease, but it required from six to two seconds to close, and from fourteen to three seconds to open the left hand, the initial attempts requiring longer than subsequent ones. This slowness of hand movements was noted by Viziolie.[3]

[3] ALIENIST AND NEUROLOGIST, Vol. V., page 621.

The manner in which the hand was opened and closed was quite peculiar, *i. e.*, instead of steadily and evenly flexing the fingers in closing the hand, so that their ends should fall into the center of the palm, he first flexed the distal phalanges on the second, then those upon the first, then these in turn upon the metacarpal bones, and this in turn was followed by partial flexure of the wrist. In, so to speak, unfolding or opening the hand the reverse order obtained, and the fingers would become straight in the following order: the index and second finger first, then the third, and then the little finger.

My friend Dr. D. V. Dean calls attention to the fact that Leyden, in 1874, noted this peculiar manner of opening and closing of the hand in one of his cases.

The most common condition of the patient's left hand is that of complete, firm closure, with flexion of the wrist. This considered in connection with the contracture of all the lesser toes on the same side, with rigidity of the muscles of the left leg, especially during sleep as well as when awake, suggests a neuropathic rather than a myopathic disorder, and the question naturally arises, If central, what is the probably pathological condition? Is it a variety of late rigidity due to a descending degeneration of the fibers of the pyramidal tract, or the lateral columns of the cord? If so the reflexes should be increased, and they are so far as can be determined normal.

The history of the case, the absence of pains, and the absence of tenderness over the nerves certainly argues against neuritis as its cause.

The subject being a male, the absence of an hysterical history of anæsthesia, paræsthesia or hyperæsthesia, the gradual development—the absence of sudden remissions, argue against the supposition that the contractions are of hysterical origin.

The contractions, spastic condition of some of the muscles of the lower limbs, absence of trophic changes and non-involvement of the rectal or vesical sphincters, non-impairment of sensation and absence of inco-ordination,

suggest a lateral sclerosis, but here again we are met by the normal reflexes.

Contracture is not at all uncommon as a result of poliomyelitis, without stopping to discuss the question whether the resulting deformity in such cases is due to the contracture or shortening of muscles, or the shortening of muscles is due to the distortion. The absence of atrophy, absence of a sudden paresis or paralysis and normal reflexes will not permit us to suppose the contracture due to a poliomyelitis.

The implication of the ocular, lingual and facial muscles in this and other cases would indicate that the pathological condition is not, if at any time, a spinal affection, one that is limited to the spinal cord. As all voluntary movement is primarily due to volition, a cerebral function, and as all voluntary movements require not only contraction of the muscles, contraction of which is necessary to flexion or extension or rotation of the part moved, but as well relaxation of their antagonists—in other words a co-ordinated contraction and relaxation of antagonistic muscles, and as the symptomatology of myotonia is such as to render us unable to explain it upon the known pathological data disclosed by investigations in connection with indiscriminate or system diseases with which we are acquainted, is it possible that in myotonia we have truly a functional disorder, a state in which when a volitional discharge occurs it fails to follow entirely the fibers connecting with the motor cells whose function it is to cause contraction of the muscles or groups of muscles, contraction of which with co-ordinated relaxation of antagonists would produce the intended movement, and coincidently is radiated to the particular motor cells the stimulation or actuation of which will induce contraction instead of relaxation of these antagonists? (An illustration of this supposed condition is found in what we term "*lapsus linguæ*," and a very similar mental phenomena is frequently presented in a great variety of insanities), thus calling for the

expenditure of greater muscular force to effect a given movement because of the opposition to movement caused by contraction of antagonizing muscles. The fact that the more frequently a given movement is executed the greater the facility of execution, would in part at least explain why in myotonia, after repeated attempts to effect an intended movement, the co-ordinated contraction and relaxation of antagonists can more readily be effected. The condition in myotonia might very appropriately be compared to the school-boy "tug of war," where movement is at first slow (provided the opposing forces are about equally balanced), and then only accomplished after persistent effort overcoming the opposition.

Such a theory would be as much in harmony with the marked heredity of the disease in many cases as the supposition that a predisposition to pathological changes in the nervous or muscular tissue was transmitted. It is in harmony with the appearance of the symptoms in early life when the specialized channels for the conduction of nerve impulses of volition have not as yet been thoroughly educated and individualized.

It is in harmony with the fact that the symptoms are particularly prone to become prominent about the eighteenth to twentieth year, at which age there is a generally recognized tendency to functional perturbation.

It is in harmony with the fact that cases—well authenticated cases—are on record which have owed their origin to emotional disturbance and shock.

It is in harmony with the fact that mental defect has been a pronounced feature in a number of marked cases.

It is in harmony with the fact that a neuropathic tendency has been a prominent feature in most of the recorded cases.

It is in harmony with the so frequently observed resemblance to the athlete with but limited muscular power, upon the supposition that a portion of force being expended in overcoming the resistance of opposing muscles, less is left to be manifested in intended acts, and

that in consequence of the accustomed explosive diffused expenditure, there is lessened control of specialized continuously increasing evolvement of voluntary power.

It is in harmony with the, as a rule, non-involvement of the involuntary muscles—of the organs of vegetative life and nerves of special sense.

It is in harmony with the fact that emotional disturbance increases the trouble, and that persistent volitional effort overcomes, for a time at least, this anomalous condition.

It is in harmony with the fact that the spasm is painless as a rule, and is in keeping with the length of days frequently attained by the sufferer after the commencement of the affliction.

If true it accounts for the signal failure of all attempts at treatment to relieve this disease.

Is it not a physical equivalent of some varieties of insanity?

Is it not the connecting link between mental and bodily ailments?

Memoranda of Examination of a Case of Neuro-Myotonia ("Thomsen's Disease"), with Remarks on its Differential Diagnosis.

By C. H. Hughes, M. D.

JOSEPH McEVOY, age 23, April 13th, 1889; weight, 145 or 150 lbs.; color of hair, dark sandy; unmarried; color of eyes, blue; complexion, florid; occupation, miner. No heredity; two sisters, no brothers, father and mother living. Tendon reactions; cremasteric, normal; knee-jerk, present in both sides, stronger in left than right; pupil, normal. Lying on back, uncomfortable; standing, comfortable; turning round of neck starts diffusive contraction of sterno-mastoid; stooping causes spasms of arms and legs; sensibility, good; pain, none in muscle, some in back of neck; contractures of biceps on motion being attempted; same also in flexors of forearm, fingers, leg, thigh, sterno-mastoid and masseters; cannot protrude his tongue, because he bites it when he does—moving it about causes contractions of masseters—chops his words short when speaking. Measurements.—Biceps, $9\frac{7}{8}$ right, $9\frac{1}{2}$ left; gastrocnemii, 12 or $11\frac{3}{4}$; thigh, 16. Temperature, ——

Myotonic electrical reaction stable; the galvanic current does not give, in a satisfactory manner, wave-like contractions, which pass from cathode to anode, as claimed by Erb.

Tetanic contractions for a few seconds follow faradic current outlasting application and are marked in some muscles. Direct mechanical irritability of muscle is increased; also electrical. Pressure upon the arteries or nerves causes no contraction. Bowels rather loose than constipated; bladder functions normal; skin healthy.

There is some persisting extension contracture in the right foot and toes.

The bromides have done no good.

This trouble was first observed by the man at the age of twenty years, in a mine in Mexico, in this manner:

After a day's work and a meal he sat down to rest and smoke. On putting his pipe to his mouth he found he could not remove it for a time because his arm and hand became fixed when he raised them. The next morning, on going to work in the mine, with his pick, he found after clutching the pick he could not for a while work with it. He was after this so much embarrassed in this way in his muscle movements that after a month or so he gave up mining altogether. He improved after traveling about in the open air, and the spasms, which came into his legs early in the morning on attempting to rise, could be walked off in the open air.

The above person is now at the county farm, under the care of Dr. Fleming, and was presented to the St. Louis Medical Society by Dr. A. B. Shaw.

The above memoranda is the result of two examinations—one in company with Dr. Shaw—the other alone, at the Poor-House. At my last visit, alone, I found him very quietly resting in his bed, all his muscles tranquil, until he began, at my request, to use them, when the characteristic myotonic phenomena appeared.

Résumé of Facts and Argument.— *A hearty-looking, medium-statured, florid-complexioned, dark-haired, blue-eyed, unmarried miner of twenty-three years of age, with smooth, healthy skin and normal growth of hair over body, without signs of tetany, history of syphilis or other grave constitutional involvement, giving no record of family history as to myotonia, and presenting no evidences of any of the chronic degenerative diseases in his symptom-groupings which are known to involve anterior cornua, posterior root zones or antero-lateral columns of the spinal cord; and no such contractures, early or late permanent rigidity of muscles, such as result from irritations

* Remarks before St. Louis Medical Society, December 7, 1889.

and descending degenerations of fibers of the pyramidal tract, dependent upon a previous cerebral hemorrhage with its attendant hemiplegia or monoplegias and exalted reflex and electric excitability and paralysis, a man who appears robust, eats heartily, sleeps profoundly, digests well, has no constipation or paralysis whatever of voluntary or involuntary muscle, and no contractures; no cincture sensations about the girdle area; no successions of convulsive spasm; no marked æsthesiometric evidence of neuropathic perversion; no transfers of sensation; no marked psychical derangement.

There are no significant fibrillary movements of single muscles or fiber-groups; no sudden jerkings; no convulsive tics; no general spasmodic contractures. Eating heartily but masticating far more tardily than he wills to because of the spasm which seizes the masseters and retards the chewing process when he attempts to eat; swallowing well, but tardily, from the same spasmodic retardation of the act, while the food bolus is in the volitional area of the mouth and throat, but without the usual facility, and no unnatural delay when the food has passed into the reflex area of the œsophagus.

The pupil, cremasteric reflex and knee-jerk are not at least greatly abnormal, and in marked contrast with the exaggerated response of a typical case of spastic paraplegia in an adjoining bed, as his attitude in standing and movements in attempts at walking are.

The soles of the feet respond to tickling, and the ankle clonus is not lacking.

This is the case we are to examine, and here are the further facts:

His arms, over biceps muscles, measure—right, about ten inches—left, from nine and a half to nine and three-quarter inches.

His thighs measure nineteen inches in their fleshiest parts, and his legs twelve inches, there being not half an inch difference in favor of the right side.

When stripped the man would pass for a moderately

strong athlete or gymnast of small stature, so well developed are his muscles in appearance.

The man is right-handed. His occupation is that of a miner, he having worked with pick and shovel in the mines of Mexico since he was ten years of age.

It was while working in the mine that he was first seized with his disease, about three years ago, when he was twenty years of age. It was while in the act of smoking a pipe, after having put it to his mouth he found he could not promptly remove it for the spasm which seized and fixed his arm while in the act of removing it. The next day he found himself unable to wield his pick with the usual facility, but he worked on for some weeks, overcoming the spasm in a measure by repeated efforts.

The abnormal muscular contractions in this case are neither fibrillary of involuntary muscles, as in progressive muscular atrophy, nor irregular or sudden, as in ordinary chorea; nor bizarre, as in athetosis; nor rythmic, as in this disease, and in hysterical chorea, not prolonged, as in tetany, nor permanent or choreiform, as in post hemiplegic contractures, nor clonic, tempestuous and violent without consciousness and unassociated with volition, as we see in the typical convulsions of epilepsia, eclamsia puerperalis, or convulsio infantilis, and there is no mark or suspicion of tetanus in them. They are not automatic movements. The will has something to do with the exciting, modifying and final overcoming of the spasm in the case before us, and the spasm has something to do in modifying and retarding, but not in absolutely and permanently resisting the will's mandate, as exists in no other form of spasm known in the literature of contractures, and it is this mutual action and reaction between muscle movement and willed movement, the rebellious muscle after the lapse of a short space of time, five to thirty seconds or more—finally falling in line with the will and harmoniously, but briefly obeying its mandate, that constitutes the chief characteristic of the disease before us as it was recognized by Bell (anno '32) and

Benedict (anno '64), Leyden ('74), before Thomsen brought it into distinctive prominence, and by which Thomsen was enabled to locate it among thirty-five or more of his family, including himself and his son, and by which still later Seligmuller, Westphal, Mobius, Erb and others have discovered it.

It was this that enabled Vigouroux (*Archive Neurologic*, Nov., 1884, "Maladie de Thomsen") to detect it, though he found exaggerated reflexes in his case and makes the hypertrophy a distinguishing feature; so with Deligny and Mobius and Strumpel and Seppilli, and all who have written upon it, including every American, English, German or other foreign author who has attempted to describe it.

A spasm of long enough duration to be termed tonic, attacking a voluntary muscle-group at the moment of a willed movement, asserting its motion without pain till it is overcome by repeated volitions, is the burden and distinguishing characteristic of all authoritative descriptions.

The will, sending its motor mandate down a volitional nerve channel, a peripheral voluntary muscle or muscle-group is met on its arrival by an apparently resistless muscular resistance—a barricade of spasm which impedes and stops the volitional contractile impulse for a while, until by repeated volitional reinforcement the spasmodic barricade gives way—the peripheral muscular rebellion ends for a time, again to be repeated, if the muscle is allowed to rest. This is Morbus Thomsenii.

There is apparently an internal force, as Erb truly says, and Seppilli has noted, which opposes their voluntary contraction, and this force prevents the muscle, when once it has contracted, from falling back into the state of relaxation and rest.

It does not change the disease or its characteristic symptomatology that Erb finds in the only cases he chooses to recognize, a myotonic electric reaction, or that Vigouroux will only recognize hypertrophy of muscle and exaggerated reflexes as its distinguished features, or Strumpel heredity, or that Erb insists on peculiar muscular

changes, while Jacuisel, Ponfic and Pitrone have demonstrated that their structure is normal.

Peters finds atrophy in a single case, while Vigouroux finds enormous hypertrophy, Seligmuller greater muscular rigidity following faradic electrical excitation, than his predecessors had done; and Erb a peculiar muscular movement under galvanism, while most observers characterize the muscular reactions as practically normal, yet all observers agree to the main and essental facts, Erb, Westphal, Seppilli, Thomsen and all other writers—the undisputed and indisputable facts, as to the nature of the spasm—a volitional spasm usually without pain, excited by an act of volition, overcoming volition, for awhile, and itself being after a while overcome by the will. This is the myotonia of Erb as it was of Thomsen and Sir Charles Bell. It is myotonia in the case before us. It was the myotonia of Deligny, though his case had crises when pain appeared four or five times a year from excessive contortions. It is the myotonia of the case before us, which has no pain in the muscles, though there is a dull pain in the lower cervical vertebral region.

Under the strongest muscular actions this patient, though always conscious, feels no pain.

The cramps are always started by a volition, a tactile excitation or an emotion, and are intensified greatly by marked mental emotion, a tendency to marked aggravation being caused by tedious medical examinations.

The man told me that when he walked about persistently out of doors, he could overcome his infirmity to a much greater degree than since he has been in the house, but that persistent motion always improves his condition. I found him on my second visit alone, after he had had a long rest from the doctors, in a very quiescent state, until he learned I had come to examine him, and the proposition was made to him to let me proceed. When he began to prepare for me, he exclaimed, "Then I will get no sleep to-night!" and as he attempted to disrobe the contractures began. I gave him an apple to eat and a

knife to pare it with. He handled the apple pretty well and pared it, though clumsily, and ate it, but with marked deliberation; and he refused to show me his tongue, saying he could not without the risk of biting it. When he sat down or lay on his back his thigh and leg would draw up, and when he touched the floor the muscles at first became fixed, but there was never, and never has been, any saltatory spasm, and the occasional fibrillary movements observed are insignificant and not persistent, transient displays of muscle overtaxed and defective innervation.

The movements are willed movements momentarily incited or emotionally or tactilely induced always, and always capable of being tardily but surely overcome for awhile by the will again. This is the keystone of the symptomatic circle of myotonia and the double arch of complete strength and beauty in this sign. It is a painless voluntarily or emotionally excitable spasm of voluntary muscle-groups, capable of spreading over the muscles of voluntary motion without pseudo muscular hypertrophy, often with largely developed muscles, generally without muscular atrophy, without loss of ordinary muscular integrity and without associated evidence of the co-existence of any of the classically described cerebro-spinal diseases, with tendency to multiple rather than to monospasm, to become diffused rather than circumscribed over the voluntary muscles, when once volitionally or emotionally excited. The characteristic facts appertaining to the accesses, nature and terminations of the spasm alone make the picture complete in its singularity and uniqueness. It was the broad, plain characteristic facts of the invariable association of a somewhat tonic diffusive voluntary muscle spasm coming on with attempted voluntary movement, and being gradually overcome by repeatedly excited volitions, that caused this disease to attract the observant eye of the great English physiologist and clinician, who first, 1832, recognized that it was something unique and peculiar in neuro-symptomatology, that

caused Benedict later, 1864; Leyden still later, 1874; and later still Thomsen, '76, and then Seligmuller in the same year; and finally Erb, Westphal and many others since, to make no mistake in its recognition.

Erb's new sign will not obliterate the record of Thomsen's singular family with its indubitably peculiar pathological symptom-grouping, entitling it to be regarded as a pathological entity though its pathology is not yet known. This peculiar symptom-grouping enabled Visioli and Mobius as well as Strumpel and Peters to recognize it, and it will enable you and I to discover it as we may see it in the case before us.

This symptom-grouping enables me to recall an occasional case in the army, before I was familiar with the distinguishing characteristic of the disease, while acting as examiner of recruits and army stragglers, invalid corps men and men on sick leave furlough. I did not then know where to place it in neuropathic symptomatology, for I was then a novice in neurology as most of us are yet. That was more than a quarter of a century ago.

No electropathic tests have yet been found that unerringly distinguish the disease, nor do I think they will ever be relied on alone. At all events none are yet generally relied on for diagnosis; certainly not to the exclusion of so characteristic a sign as that associated with the volitions, consciousness and painlessness, and usually, but not demonstrated in this case, heredity.

All recorded cases, including Erb's, have been diagnosed before and without necessary reliance on electro-tests.

Erb has recently made a commendable effort to elicit an electro-diagnostic sign, and if he shall succeed after ample verifications in many subsequent cases in establishing it beyond a doubt as unvarying, he will have added a new element of certainty to the already quite certain signs of this disease, and a new laurel to his justly-earned fame; and while he finds in the proportion of three out of five of his recent cases, certain myotonic

reactions, which he considers quite sufficiently characteristic, he finds these reactions after having made the diagnosis according to the rule we have indicated of *volitive muscle resistance* and *resistance volitively overcome*, to use the language of Visioli. Dana also diagnosticates a case in the same way though it does not present Erb's characteristic electro-myotic reaction.—*Vide New York Medical Record*, Dec. 7th, 1889. This distinguishing feature enabled Wood, in classifying all of the muscular contractures under two headings, to make of all but this one a common class, and compelled him to give to neuro-myotonia, a separate, singular and exclusive classification. (See "Contractures A and B, Wood's Nervous Diseases," pages 166 and 172, Ed. 1887.) It stands alone, distinctive and peculiar among the neuro-muscular contractures, making its own diagnostic landmark, by which its own peculiar identity may always be discovered to the neurological clinician.

The fact therefore remains that the disease was discovered before the electro-test was proposed. It will continue to be detected satisfactorily as now if no electro-test shall be confirmed as invariably characteristic of it.

The myotonic reaction of Erb, though so satisfactory to its distinguished discoverer, that he regards a few cathodic closure contractions and a tap with a percussion hammer, as all sufficient for establishing a diagnosis of myotonia is still *sub judice* with other authorities. It is to be hoped that the myotonic electrical reaction may be hereafter confirmed with sufficient frequency to give it the value claimed for it. It is not fully confirmed in this case, yet it is undoubtedly one of Thomsen's disease if there is anything in description, even as Thomsen has made and Erb has conceded. The tap, however, with the touch of a volition, setting the muscle in abnormal spasmodic action and an exertion of the will overcoming the spasm, constitutes the feature of this disease, which cannot be gainsaid. This with painlessness during contraction, and

generally larger muscles, general healthy appearance and heredity, or its appearance at about puberty, or not later then twenty years, has characterized most of the cases recognized as such in the literature without reference to electrical peculiarities, which have not been regarded as practically very far from normal.

It does not rule out the disease that there are varying degrees of excitability to touch, while a willed movement in all is sufficient to start the morbid phenomena; nor that a sort of athetosic condition of spasm persist in the toes of the right foot.

Sometimes and in some cases a gust of wind, a touch or a mental emotion will excite the contractions. A mechanical electrical or volitional excitation being alike sufficient to start the morbid muscle phenomena in many cases, but the fact still stands out in bold relief that the volitional effort impeding, retarding and resisting it, and the spasm yielding to the volition after a variable interval of time—ten to thirty seconds or more—is the characteristic sign, and no cases have been examined for galvanic wave-like excitability to cathode or anode closure, or to faradic contracture that did not first present and were not first diagnosed by the characteristic sign connected with the volition. The sign is volitive and connected with the volitive movements, their arrest and movement under persistence of the volitions.

So without denying the possible supplemental diagnostic value of Erb's new test, and rather wishing that it may be sufficiently confirmed to give us another sign of this singular disease, and wishing that even the harpooning of the muscle for hypertrophied muscle fibers, and increased nucleii of the sarcolemma found by Erb in his cases, may prove of value, yet good diagnoses have been made without harpoon or battery.

These may prove as valuable as the hereditary factor, but characteristic cases are not excluded because heredity could not be shown, any more than we would exclude a case of posterior spinal sclerosis with persistent tendon

reflex if the other symptoms were present. It has not been long since Erb and Westphal were positive that the patellar tendon reflex was a positively unerring sign of posterior spinal sclerosis and that there could not be a healthy cord without it. That position was controverted in the United States at the time it was taken in Europe, and the position taken in this country, as it now stands, is the most nearly correct.

There are not so many absolute diagnostic certainties that I should exclude a case from the category of myotonia because it was lacking in Erb's myotonic muscle electrical reaction—the wave-like motions under cathodic closure and stabile current reactions, but feebly elicited in this case if at all; nor should we exclude a case because the persisting tetanic contractions under faradic electricity do not show, though they did show in some muscles in this case, nor because there might be general increased faradic, excitability, as appeared to be the case here, though authors do not agree on this point; nor should we exclude a case because the reflexes are exaggerated, as Hammond maintains they ought to be and probably are in most cases; and would be in all but for the rapidly supervening muscular rigidity after percussion; and, as Vigouroux found them to be in his case, while the concensus of observation among all others asserts that the reflexes are normal.

Nor should we rule out an exceptional case like Ballet's and Marie's, because the larynx was often affected by the spasm; nor should we rule out a case with the other and more universally recognized and always recognized signs, because any author's single sign cannot be elicited to the entire satisfaction of all investigators; nor do I exclude this case from recognition because one observer fails to find the only sign he seeks and will see no other.

This is a case of myotonia. There is no other place for it, already made, in any neuropathological symptom-grouping. It's a good place to put it, unless we wish to make a new one for it, but this we cannot do, for the

chief and signally distinguishing characteristics of Morbus Thomsenii are presented in this case, viz.:

1. The invariable association of tonic spasm with attempted voluntary motion and general freedom from sphincter involvement.

2. The yielding of the spasmodic resistance to repeated and persistent volitions.

3. The recurrence of the spasmodic conditions after a period of voluntary rest, and a renewal of the voluntary effort.

4. The absence of pain associated with muscular spasm.

5. The preservation of the general muscular integrity —no marked loss of power under the will or electricity.

6. Extension of the spasm, when once excited, to all the muscles brought into action, and under great mental emotion, sometimes a tendency to become quite general. Diffusive spasm volitionally excited and volitionally but tardily overcome.

To sum up: Consciousness, volition exciting the spasm, painlessness in the cramped muscles, muscular integrity, and the spasms overcome by persistent volitions, gives us the clinical picture of myotonia or Morbus Thomsenii so clear, that with or without electrical reactions, with or without muscular hypertrophy, with or without the spreading spasm, with or without the harpoon and its revelations, we ought to see it plainly.

The picture is there and the light is good. We do not need to have all the shadows of artistic fancy to discern it. Different artists may give it slightly different shadings, but the bold outlines are, in this drawing, made by the pencils of the old masters, and the new, and all must paint to them, whatever other touches they may give, if they would faithfully portray its true features.

Eichorst may controvert and Bernhardt deny it to be an affection of the muscles; just as Strumpel and Thomsen

disagree; just as Hammond reasons for its nervous, as Strumpel for its muscular origin; just as Erb is confronted by the host of authors who assert that the electrical reactions are normal, and yet amid all the controversy there stands out the picture, and these differences do not obscure it. They certainly cannot obliterate it. We see it still as it was painted in fadeless colors by the masters.

[*Note.*—We have taken the liberty to call this neuro-myotonia because we regard it as a general nervous disease, especially manifested in the muscular system.]

JOSEPH WORKMAN, M. D.,

TORONTO, CANADA.

DR. JOSEPH WORKMAN, whose photograph graces the initial pages of this journal, was one of its earliest collaborators, and he has continued a constant, faithful and entertaining workman on the collaboratorial staff of the ALIENIST AND NEUROLOGIST to this day.

Ripe in years, strong in mind and full of knowledge, he has been and is a most helpful associate in the good work the ALIENIST AND NEUROLOGIST has done during the past decade in the charming and enlarging field of neurology. His long clinical experience, large medical discernment and ripe scholarship have made him a power and a charm in the wide and widening circle of our readers. He is known to the ALIENIST AND NEUROLOGIST by the always appropriate and entertaining translations which have for so many years adorned its pages, the most critical of our many readers having always approved the judiciousness of his selections, applauded the beauty of his diction and approved his criticisms whenever he has seen proper to make them.

Dr. Workman comes of a worthy and illustrious lineage.

The Workmans of Ireland are descendants of an English ancestor, the Rev. William W., of St. Stephen's Church, Gloucester, England. He was deposed and excommunicated by Archbishop Laud, for having preached against the setting up of images and pictures in churches. He had a numerous family, one of his sons, named William, joined the army of Cromwell and came over to Ireland with that king-killer. As Cromwell was very liberal in rewarding his followers with the goods of

other people, William received in compensation of his military service several tracts of land in the county of Derry, not far from Coleraine. All the Workmans of Ireland, Scotland, America and India are descended from this Puritan soldier. They all have been of a migratory tendency. The father of the late Dr. Wm. Workman, of Worcester, Massachusetts, came to New England before the conquest of Canada by the British, and fought at the siege of Ticonderoga. Joseph Workman, the father of the subject of our present memoir, was a native of Moneymore, in the county of Derry. He, in company with an elder brother named Benjamin, emigrated to the then new United States soon after the close of the war of Independence. He resided for three years in Philadelphia and then returned to Ireland, where he married Catharine Gowdey, a girl of Scottish descent. By her he had nine children, eight sons and one daughter. Dr. Joseph Workman, of Toronto, was the fourth of these sons. He was born near the town of Lisburn, in the county of Antrim, on the 26th of May, 1805. The eldest son, Benjamin, came to Canada in 1819; the second son, Alexander, followed in 1820; the three youngest, Samuel, Thomas and Matthew, came in 1827, and the rest of the family with father and mother, in 1829. Only two of the sons now survive: Alexander, aged 91, and Joseph, aged 84. The father died past 88, and the mother past 102. Benjamin died at 84. Joseph graduated in the McGill University as Doctor of Medicine and Surgery, in 1835, after a course of five years' study, during which he was a private pupil of Professor John Stephenson, M. D. He assumed charge of the Toronto Asylum for the Insane on 1st July, 1853, and continued in office until 19th July, 1875.

Since he severed his connection from the Toronto Asylum, he has resided in Toronto, most of the time engaged in the practice of his profession, but chiefly in the capacity of medical consultant. He has been president of the Toronto Medical Society and the recipi-

ent of many other honors from his professional brethren of Ontario. His portrait, placed there by admiring friends, adorns the walls of the Medical Society, as his photo graces this book.

He is too well known to need further notice from our hand and only the junior readers of the ALIENIST will require that he be introduced by any description at all.

SELECTIONS.

CLINICAL NEUROLOGY.

THE ABUSE OF UTERINE TREATMENT THROUGH MISTAKEN DIAGNOSIS.—By William Goodell, M. D., Professor of Gynecology in the University of Pennsylvania. While the treatment of uterine diseases received a great impulse from the writings of Simpson in England, of Kiwish and Scanzoni in Germany, and of Huguier and Recamier in France, it is to Bennet that we chiefly owe the common use of local applications and the popularization of the speculum. The former gynecologists wrote about the more strictly surgical diseases of women, which were, and will ever be, relegated to specialists. But Bennet as early as 1843 in French, and 1845 in English, published his work on "Inflammation of the Uterus," of which the last edition was issued in 1861. In it he contended that inflammation of the cervical canal is the main factor in female diseases; that from it come ulceration, displacement, leucorrhea, menstrual derangement and ovarian disorder; and that the inflammation, being limited to the cervical canal, can readily be dislodged by strong caustics. Written with dogmatic zeal, advising a definite treatment to a reachable and a seeable object—a treatment which the humblest yeoman of the profession could carry out—few books of modern times have exerted so great and so widespread an influence. That riddle of the Sphinx—the cause of woman's ill health—had been read and interpreted! The profession was taken fairly by storm; the effect was as electric as the appeal of Maria Theresa to Hungarian nobles. From Arctic to Antarctic oceans, from the Mississippi to the Volga, countless speculums of varied form leaped from their bags and flashed in sunlight boreal, tropical, and meridianal. Cauteries actual or potential, applied to actual or potential uterine sores, became the order, in fact, the ruling passion of the day. In the general enthusiasm it was soon forgotten that every mucous membrane secretes, and that it must of course give evidence of its own secretion, just as every nose contains its mucus. Hence, every examined womb, being found to contain mucus, was, as it were, invalided—that is to say, it was put on the speculum list. Naturally, then,

not a womb being found healthy from the speculum standpoint, this much-abused organ was charged with being the cause almost all of the ills that female flesh is heir to, and it was treated—that is to say, maltreated—for every imaginable disorder that could not be referred off-hand to some other organ. Bennet, the medical Frankenstein, had evoked a monster which could not be curbed, and for five-and-thirty years the speculum ran riot.

But in this age of unrestful progress, at every turn of the hour-glass of time, some cherished creed, some accepted dogma, is proved a heresy, and Bennet's cervical theory fared but little better. A wholesome reaction set in. As experience grew, it was found that pelvic inflammations and strictures of the cervical canal came from this treatment. This discovery led to the abandonment of the more heroic caustics. Then, again, it gradually dawned upon truth-seekers that far more than inflammation, passive congestion of the womb and of its annexes, together with resulting structural changes, that uterine displacements and injuries, and that ovarian and tubal lesions played important *rôles* in the female economy. In keeping with this knowledge is the far more rational and beneficial treatment of the present day.

Still, granting that the treatment of actual, visible, and tangible uterine disease leaves little for improvement, the whole truth has not been reached—for truth evolves slowly and does not, like Aaron's rod, bud and blossom in a night. The ball-and-chain of tradition still drags at the heel of this branch of science, and the medical mind, in close touch here with the lay mind, tends to give the reproductive organs undue importance—to attribute, in fact, altogether too much to their influence. By a very large number of practitioners, even by specialists working in other fields of Medicine, these organs are too often wrongfully made the scape-goat for headaches and nape-aches, for spine-aches and back-aches, for weakness of vision, for aural disturbances, for sore-throat and weak lungs, for irritable heart, and also for a host of so-called uterine symptoms. Yet these very symptoms may be due wholly to nerve-exhaustion, or malnutrition of nerve centers, and not to reflex action, or to direct action, from some real or some supposed uterine disorder. I say this advisedly, because I too have thus erred, and because hardly a day passes without my seeing cases of supposed uterine

disease which have been so treated for months—even for years—when the whole trouble, or the most of it, lies—not in the reproductive organs, but—in the nerve-ganglia. This abuse of uterine treatment, through a mistaken diagnosis, is, in my opinion, the great medical error of the day.

Once I was asked by a medical friend to see an exceedingly bad and acute case of pruritus vulvæ. Very naturally attributing it to uterine disease, he discovered a small cervical tear, and I was called to decide the question of repairing it. I, too, was, at first, led astray, but the suddenness of the seizure and the lack of consistency in the behavior of the symptoms, put me on my guard, and we soon found out the cause to be an acute attack of jealousy.

To this day a lady rallies me upon a wild-goose chase which I made after a uterine cause for her neurasthenic symptoms. Carefully overhauling her pelvic organs I discovered nothing but a torn perineum, and attributing to that lesion all her ills, which were legion, I restored it, making at the same time the rash but honest promise of her complete restoration to health. The rent was a bad one and needed repair, but it had existed for years without doing harm, and it had nothing to do with her symptoms, although they were largely uterine in expression, notably a bearing-down feeling. They became, in fact, worse after the operation than before, and it was only after recognizing the nerve element of her disease that I was enabled to do her any good. Many such mistakes, of attributing too much to the reproductive apparatus, have I seen in the practice of other physicians; but my own blunders in the same direction have made me feel very charitable towards them. Out of many examples let me give a few:

Not many years ago I was asked by one of our best and most conscientious physicians, himself a gynecologist and a medical teacher, to see a very delicate and refined lady. She had passed through most of the trials which beset a clergyman's wife, and had borne two children, the younger one ten years before. Having for many years enjoyed fairly good health, she lately had suffered a great bereavement, and she was now prostrated by nerve-exhaustion. Her symptoms were markedly of a uterine character. These were pain in the back, an irritable bladder, a pelvic bearing-down, an inability to walk,

aches in the left groin, menorrhagia and leucorrhea. These uterine symptoms had led my friend astray, and finding an insignificant cervical tear, he attributed to it all his patient's ill-health, and against my advice, operated upon it. The wound healed perfectly, excepting in one suture track on one side of the cervix, where a small fistula remained. His patient becoming none the better, but rather the worse, he laid the blame on this fistula, and tried to close it. Not succeeding, he again called me in. Now, this small fistula had no more to do with the lady's general ill-health than the earring holes in her ears, and her disease was clearly a neurosis. Yet I could not bring my friend to my way of thinking—the uterine symptoms were too much for him, and he tinkered away at the fistula until it finally healed up, but the lady became no better. Finally, he adopted my theory of neurosis, put his patient upon an appropriate treatment, cured her, and then had the manliness to thank me for my advice. My friend is now, alas! no more, else I would not have told this story; and I have done so simply to show how hard it is for a bright and progressive mind, even for a gynecologist and a medical teacher at that, to free himself from the bias of tradition.

By breaking down the nervous system, the brain-cramming, the intellectual rivalry, the buckram proprieties, and the unwholesome confinement of our boarding schools and public schools, breed a host of sickly girls, who swarm in every class of society. Manifold diseases, both functional and structural, date from the recitation room. They are mostly of a uterine complexion, for at that time of life the sexual sphere dominates, and the brunt of the nervous and of the vascular disturbances which form the essence of nerve-exhaustion, falls on the most exacting organs—the reproductive. Hence these suffer from neuralgic pains or from congestion and the lesions coming from prolonged congestion. Yet physicians, misled by the urgency and the number of the so-called uterine symptoms, mistake the effect, or more often the counterfeited effect, for the cause, and give a local treatment when it should be a constitutional one.

So common is it for girls in boarding-schools to suffer either from amenorrhea or from irregular menstruation, as to create a general impression in the community that in these schools some drug is secretly given in the food in order to lessen the laundry work. In one school of

great repute so many girls missed their monthly periods that the family physician of several of them wrote to me asking whether it were possible, as his patients averred, "that as their clothes was laundried in the building, something was given in their food or their drink to produce the effect, for the purpose of saving the laundress the disagreeable task of washing the napkins." My reply was, that if laundresses were acquainted with a drug that could arrest menstruation, they knew more than the profession; and that his patients had lost their monthly periods, not from secret drugs, but from loss of health due to an unwholesome system of education.

Another physician, the worthy chairman of a school-board in a young city, became awakenened to the fact that a great proportion of the girls in the public schools were failing in health from backache, wakefulness, weariness, and disordered menstruation. Full of philanthropic and architectural zeal, and with the uterine idea firmly implanted in his head, he wrote to me, asking whether the long flights of stairs in the school-houses were not to blame for these female ailments. I replied in words to the effect that were a higher culture literal, being perched upon the top of some Eiffel's tower, like Simeon Stylites upon his pillar, and were girls obliged to climb up to it, the muscular effort would no doubt put them out of breath, and repeated intellectual excursions in the same direction might in the end cause—not uterine diseases, but—the heart diseases of atheletes and of Alpine climbers. I further contended that stair-climbing, *per se*, could rarely produce uterine disorders, and that the girls in his school were suffering—not from uterine disease, but—from the nerve-counterfeits of uterine disease, viz., from the reflexes of a nerve-exhaustion resulting from an unhealthy, and therefore, faulty system of education. My arguments evidently failed to convince this honest gentleman, for the correspondence abruptly ended at this point, and I have a shrewd suspicion that he carried out his architectual plans. Should any of my readers journey westward, and see in some growing city a girls' school-house fashioned like a covered rope-walk or a skating rink, depend upon it, it will turn out to be the philanthropic but mistaken evolution of my correspondent. The traveler would no doubt find education very effectively taught on the only floor—the ground floor—of this building; but doubtless, also, he would see as

many pale faces, and would discover on inquiry no fewer backaches, spineaches, wombaches, and menstrual disturbances, than when the recitation rooms were on the third or the fourth floor.

In a parous neurasthenic woman, a leucorrhea, a slight prolapse of the womb, a small tear of the cervix or an insignificant rent of the perineum, each plays the part of the will-o'-the-wisp to allure the physician away from the bottom factor. To these trifling lesions —because they are visible, palpable, and ponderable, and because he has, by education and by tradition, a uterine bias—he attributes all his patient's troubles; whereas a greater and a subtler force, the invisible, impalpable, and imponderable nervous system, may be the sole delinquent. She may be a bereaved mother, a grieving widow, or a neglected wife, and all her uterine symptoms—yes, every one of them, may be the outcome of her sorrows, and not of her local lesions.

Often the victim of this misdirected treatment is a young unmarried girl, whose nerves have been upset by some secret grief, perhaps a cross in love, or by ambitious over-study. Misleading symptoms now set in which I cannot better describe than by a quotation from one of my own articles on the subject ("Lessons in Gynecology," third edition, page 523):

"She loses her appetite, lies awake at night, and grows pale and weak. She has cold feet and blue finger-nails, and perhaps complains of infra-mammary and ovarian pains. Headache and backache, spineache, and an oppressive sense of exhaustion distress her. Her monthly periods, hitherto without suffering, now begin to annoy her more and more, until they become extremely painful, and at these times dark circles appear under her eyes. Her linen is stained by a leucorrhea and bladder troubles soon set in. She is wearied beyond measure by the slightest mental and physical exertion; the short visit of a friend upsets her for the rest of the day; 'a grasshopper is a burden' to her, and she finally becomes very nervous or hysterical. Now, very unfortunately the idea attached to this group of symptoms is that the womb is at fault. A moral rape is, therefore, committed by a digital or a speculum examination, and two supposed lesions will be found—first, as a matter of course, the natural virginal anteflexion; and, secondly, a slight uterine

catarrh. These are at once seized upon as the prime factors, and she is accordingly subjected to a painful, an unnerving, and a humiliating treatment, for the false flexion and the sham endometritis. Unimproved, she drags herself from one consulting-room to another, until finally, in despair, she settles down to a sofa in a darkened room, and becomes either the spoiled pet or the vampire of the family."

That this is not an over-wrought picture, every one of my readers will attest. For what physician has not had the original as a patient, and cursed his stars for the possession?

[The neurologist, especially if he has been an alienist of large clinical experience, manages these cases better, and does not curse his stars so much as the gynecological speculum that has kept them so long out of the neurologist's hands. The neurologist, if he knows his business, rather cures them, and the patient blesses him while her husband perhaps does the cursing, applying it to the gynecologist who has so long delayed the cure of his wife.—Ed.]

At the present time there are in my private hospital seven ladies who are rapidly recovering from general nerve-exhaustion, and from its sham uterine symptoms. They will get well without any local treatment whatever. Yet all were pronounced by their physicians to be cases of uterine disease, and had been so treated for months, and even for years, without benefit. One of them was urged, by an excellent authority, to submit to the removal of her ovaries; another, to have her slightly torn cervix sewn up; a third, to have a trifling rent in the perineum repaired; whilst a fourth, a young girl whose nerves have given way from hard study, had a perfectly healthy and perfectly poised womb, propped up by an anteflexion pessary, treated every other day for weeks, by an applicacation, and deluged twice a day with gallons of hot water.

Many of us have laughed at the quaint but kind doctor in one of the Bulwer novels, who prescribes a special pellet for each emotion, and calms a passion by its appropriate parvule. But are we, the physicians of the nineteenth century, a century of infinite progress, are we, I say, a whit the wiser? We who seek to cure the nerve-reflexes of grief, of love, of neglect and of jealousy, not by harmless infinitesimals, but by the removal

of the ovaries, and by operations upon the cervix and the perineum; or try to salve brain-wounds and heart-pangs by anteflexion pessaries, by uterine applications and by vaginal douches of a temperature of 110°? Can the rankest materialism be pushed further than this?

Fortunately for the reputation of my professional brothers, and fortunately for my own—for I, the heavy Mentor of this homily, have also sinned and in like manner—this grave error of diagnosis is not without excuse. The symptoms of nerve prostration so greatly resemble those of even coarse uterine lesions, that the nerve mimicries can very readily be mistaken for signals of actual organic disease. Nor, indeed, are they always distinguishable the one from the other, for the marvelous kinship between mind and matter is a tangled skein, not yet unraveled by dead-house or by laboratory.

What, then, are these symptoms? Their name is legion, but the most common ones are, strangely enough, those which lay and professional tradition, with singular consent, have labeled as symptoms, *par excellence*, of womb disease. They are, in the order of their frequency, great weariness, more or less of nervousness and of wakefulness; inability to walk any distance, and a bearing-down feeling; headache, nape-ache and backache; cold feet, an irritable bladder, spinal tenderness and pain in one ovary, usually the left, or in both ovaries. The sense of exhaustion is a remarkable one; the woman is always tired; she passes the day tired, she goes to bed tired, and she wakes up tired, often, indeed, more tired than when she fell asleep. She sighs a great deal, and her arms and legs tremble or "fall asleep" so frequently that she fears palsy or paralysis.

Other symptoms, not quite so common, are the cerebral ones; such as low spirits, bad dreams, nightmares and night-terrors; explosive sounds in the head, a loss of memory, suicidal thoughts. the fear of impending insanity, the dread of being left alone or of being in a crowd. Some patients are unable to protrude the tongue, or they may have weakness of vision, or a morbid keenness of smell or of taste. Others are kept away from church on account of spinal thrills and locking of the jaws whenever they hear the lower or the tremulous notes of the organ.

The uterine reflexes are: uterine, pelvic and ovarian aches; pendulum pains swinging from one groin to the

other, jerking muscles which cannot keep still, a trembling or a quivering in the abdomen, or a feeling that it needs support, which is often given by pressure with the hands. The intestines display their interest in the general neurosis, by flatulence, by noisy borborygmi, and by the belching of wind in large volumes. They usually keep bound, but sometimes they are loose, or the two conditions alternate. One very common symptom is great exhaustion after a movement of the bowels, and these movements are often caused at unseasonable hours by any simple excitement, such as the ring of the door-bell or the call of a friend.

Dyspeptic symptoms are rarely absent, sometimes they are very marked, while the tongue looks perfectly clean, even when nausea, vomiting, or diarrhea are present.

Some nervous women are annoyed by clammy hands and feet, or by profuse sweats, which often are not general, but either local or unilateral. Thus I have seen one-half of the face always wet, while the other half kept dry. One of my patients perspired so profusely from the tips of her fingers, that they were constantly dripping, and she could not wear gloves. Once I saw a hysterical nose distilling a clear serum, which for weeks dribbled away, almost in a stream. The annoyance was great, yet no treatment whatever did the slightest good; but one day it vanished as mysteriously as it came. Many nervous women are freightened by muscular cramps, or by tinglings, by loss of sensation, or by numbness in the extremities, which are deemed the precursors of paralysis. Nor does the skin escape the general sympathy. It becomes, dry, harsh and scurfy, and pigmentary deposits appear under the eyes, around the nipples, and on the chin and forehead. Blondes are likely to get a mottled complexion, and brunettes may become disfigured by brown patches. Sometimes the whole complexion changes to a darker hue. In one instance this was so marked that both the family physician and the consultant diagnosticated a case of nerve-bronzing to be one of Addison's disease.

Another very remarkable, and often very misleading symptom, is an aneurismal pulsation of the aorta in the epigastrium. Repeatedly have patients been sent to me with the diagnosis of aortic aneurism, when their sole disease was nerve-exhaustion.

Lastly, abnormalities in the sexual feeling are not wanting. In the majority all desire is quenched or intercourse is painful; in some the sexual feeling is increased; in yet others, it is urgent, but it cannot be gratified; in a few, the dreams are erotic.

From this wealth, from this positive exuberance of symptoms, one would suppose that the diagnosis could not offer any difficulty whatever; but this is far from being the case. The laws governing woman's complex organism cannot be codified; nor can we correctly label the lesions of cerebration proper or of innervation in general. Then the instinct of causality in man leads him to forget that things seen may come from things unseen, and to attribute preferably to the seeable and to the touchable like phenomena, which may come from the unseeable and the untouchable.

Naturally then, we are likely to be misled: *First*, by symptoms which by common consent are deemed peculiar to uterine disease; *secondly*, by the co-existence of actual uterine disease, to which we attach undue and overshadowing importance. Apart from these reasons there is yet another one: the human mind, bewildered by a multiplicity of details, does not catch the meaning of their aggregate. So Goethe's traveler missed the forest by reason of the wilderness of trees around him, and the hero of our own national caricature "could not see the town, there were so many houses."

From a large experience I humbly offer to the reader the following watch-words as broad helps to diagnosis. In the first place, always bear in mind what another has pithily said, that "woman has some organs outside of the pelvis." *Secondly*, Each neurotic case will usually have a tale of fret or grief, of cark and care, of wear and tear. *Thirdly*, Scant or delayed or suppressed menstruation is far more frequently the result of nerve-exhaustion than of uterine diseases. *Fourthly*, Anteflexion, *per se*, is not a pathological condition. It is so when associated with sterility or with painful menstruation, and only then does it need treatment. *Fifthly*, An irritable bladder is more often a nerve symptom than a uterine one. *Sixthly*, In a large number of cases of supposed or of actual uterine disease which display marked gastric disturbance, if the tongue be clean, the essential disease will be found to be neurotic; and it must be treated so. *Seventhly*, Almost every supposed uterine case, characterized by excess of

sensibility and by scantness of will-power, is essentially a neurosis. *Eighthly*, In the vast majority of cases in which the woman takes to her bed and stays there indefinitely, from some supposed uterine lesion, she is bedridden from her brain and not from her womb. I will go further, and assert that this will be the rule, even when the womb itself is displaced, or it is disorded by a disease or by a lesion that is not in itself exacting or dangerous to life. *Finally.* Uterine symptoms are not *always* present in cases of uterine disease. Nor when present, and even urgent, do they *necessarily* come from uterine disease, for they may be merely nerve-counterfeits of uterine disease.

Pseudo-Tabes.—Professor Pitres, of Bordeaux, describes, in *Arch. de Neurol.*, a case no less embarrassing as to pathology. The patient presented all the classical symptoms of progressive locomotor ataxy. The autopsy showed complete absence of sclerosis in the cord and medulla, and the roots of the spinal and the peripheral nerves were intact.

MM. Spillmann and Parisot, of Nancy, report, in *Rev. de Méd.*, some new cases of tabes following peripheral traumatism. They conclude that a slight wound may be the origin of tabes, but this alone is not a sufficient cause. There must be a predisposition, or an inherited neurosis.—[Report of Drs. Bourneville and Sollier, Paris, in the *Satellite.*]

Atasia and Abasia.—M. Blocq describes, in the *Arch. de Neurol.*, new characteristics of this affection. Its onset is most sudden after excitement. The trouble is apparent while in the upright position or walking, nothing abnormal being noticed when the patient is sitting. The patient can go on one foot or on his hands and knees; jumping and climbing are equally possible. There is no inco-ordination in repose. This inco-ordination is not constant. It may be absent for some time and then re-appear. As to the physiology, the author suggests that there are pathological changes in the cortical center for walking or in the spinal cord, but in all cases these changes are purely functional without any organic lesion.

Contractions.—M. Blocq, in his opening address, aims to distinguish between spasmodic contraction and pseudo-contraction. The first has for its principal characteristic

certain localized association of the muscles, exaggeration of the tendon-reflex, disappearance during chloroform narcosis. It does not correspond to the anatomical lesions of the muscles, but to irritation of the anterior horns of the cord. It is often complicated with persistent fibrous contraction of the tendons. The pseudo-contractions are characterized by a sensation of spinal rigidity, irregular localization, the absence of the exaggerated reflex, and their non-disappearance during chloroform narcosis. They result from traumatism, muscular inflammation, Parkinson's disease, and primitive myopathy.—*Ibid.*

Muscular Atrophy of Tabetics.—Dr. Dèjérine has given the Société de Biologie the results of his researches on the nature and frequency of muscular atrophy in tabes. In one hundred and six tabetics he found eleven suffering from atrophy. In five cases of autopsy he found three of the Avan-Duchenne type, the fourth of the scapulo-humeral, the fifth atrophy of the hands. In all there was atrophy of the muscles of the lower extremities. The normal contractility of the muscles was diminished or abolished. The response to the electrical current varied according to the preservation of the muscular fiber. The reaction of degeneration was noticed only in one case. He found, as lesions, marked pigmentation of the primitive fasciculi and interstitial steatosis; the intramuscular branches of the nerves and corresponding trunks presented degeneration in proportion to the degree of atrophy. The anterior roots were intact, and the anterior horns of the cord normal, as where the ganglia of the anterior roots. In the majority of cases the atrophy set up a neuritis of the peripheral motor nerves. It was similar to the motor neuritis described by the author in 1882. Both are decidedly remote from the central nervous system, and both are peripheral, for the spinal ganglia are intact.—*Ibid.*

Sciatica with Deformity of the Chest.—The essential characters of this deformity are inclination of the body to the opposite side, and complete inability to raise the foot of the ailing side. It depends on a simple instinctive position assumed to relieve the suffering, and is due in the beginning to muscular contraction, which ceases when the patient is on his back. The spinal column pre-

sents a double deviation—an inferior lumbar curvature—the concavity presenting to the side on which it is dependent, and an inverse conpensatory superior dorsal curvature. The amount of deviation does not depend on the duration of the sciatica, but on the intensity of the pain.—Dr. Babrieski, *Arch. de Neurol.*, t. xv.—*Ibid.*

Spinal Manifestations of Blennorrhagia.—It is possible to tell the course of a gonorrhea by the disturbance of the sensibility and motility of the lower half of the body, not the lower extremities. These are lightning-like pains, hyperæsthesia, enfeebled muscular power, exaggerated reflexes, and paraplegia. The pathological anatomy is not known. The clinical phenomena are such as result from congestion and meningo-myelitis affecting the posterior and latero-posterior portions of the cord.—Hayem and Parmentier, *Revue de Méd.—Ibid.*

Ophthalmoplegia Externa with Exophthalmic Goitre and Hysteria.—The ophthalmoplegia can be observed at the time the individual develops the goitre and hysteria, the goitre alone, or the hysteria alone. It has been proved that Basedow's disease is connected with some trouble of the central nervous system, particularly the medulla. But the lesion is not organic. It is a simple functional lesion suscepitible of amelioration, aggravation, or cure. The writer considers Basedow's disease as a bulbar neurosis, and says we may have the other motor nerves of the eyeball paralyzed without the exophthalmia.—Dr. Ballet, Fellow of the Faculty of Medicine, in *Revue de Méd.—Ibid.*

Idiocy with Pachydermic Cachexia (Idiotie Cretinoide).—M. Bourneville, who reported in the *Arch. de Neurol.*, a complete study of this affection, gives two new cases. He found, as in the former cases, entire absence of the thyroid gland. These two were entirely different from the others. The hair was roan or light-red, coarse, harsh, and thin. The scalp was the seat of an eczematous eruption. The anterior fontanelles remained open. The skin was waxy and eczematous. The lower part of the cheeks was thick, horny, and trembling. The supraclavicular space and the axilla were filled with a pseudo-

lypomatous mass. The hands and feet were mis-shapen and œdematous. The voice was hoarse and rasping. There were present umbilical or inguinal hernia and genital anomalies. Finally, the intellect was that of an imbecile or an idiot more or less complete. He had opportunity that year to make an autopsy on a brother and sister with *idiotie cretinoïde* and myxœdema. In each case there was complete absence of the thyroid gland.—*Ibid.*

New Function of the Medulla.—Professor Richert, of Paris, has demonstrated by a series of experiments, that the exhalation of watery vapor is a special function of the nervous system, particularly the medulla. With thin-skinned animals the water passes off through the skin, and a lowering of the temperature is effected by the exhalation; but in thick-skinned animals, as the dog, the cooling process is performed by the lungs.

NEUROTHERAPY.

Nerve Exhauston and Opium.—The revelations following the death of Mr. Wilkie Collins may perhaps tend to increase the pernicious opium habit amongst those who are or who believe themselves to be in need of some extra comfort or support. The accounts given by Mr. Edmund Yates and by Mr. Hall Caine differ in some respects, although they agree as to the relatively large amount of laudanum habitually taken by the deceased *litterateur*. The former speaks of Collins as a martyr to nerves and gout, and seems to infer that the drug was resorted to for the relief of pain. The latter, in an elaborate report of a conversation held early in 1888, professes to give the novelist's apologetic explanation for his practice. He took laudanum "to stimulate the brain and steady the nerves," and he had been in the habit of taking a wineglassful of laudanum many times a day for fully twenty years. Few things are more lamentable than the obvious cost at which much literary work has been accomplished. De Quincey, Coleridge, Bulwer Lytton, and Wilkie Collins stand out as warnings agaist the folly of over-taxation of mental

powers, and as examples of the habitual indulgence in opium. Rossetti, with chloral hydrate, and more recently the actor Damala, with morphine and cocaine, show the same form of weakness in resorting to other remedial (!) measures. It would be invidious to attempt to enumerate well-known names in literary and artistic circles of men whose work has been carried on beyond reasonable limits under the influence of alcohol. The lesson to be learnt is that brain-power has its limitations as much as muscular power. Overwork produces exhaustion in both cases. Physiological laws cnnnot be set at defiance. So far as opium is concerned, it undoubtedly diminishes the susceptibility to external stimuli, and hence may enable a man whose attention is diverted by pain to obtain relief, and perhaps to concentrate his thoughts more fully upon some particular point; but, as a mental "stimulant," its employment is to be deprecated as unsound and dangerous. The constant need engendered by its use does not strengthen the position of a "stimulant," so often erroneously claimed for this drug.—*Lancet.*

CHLORALAMIDE: A NEW HYPNOTIC.—Chloralamide, the latest hypnotic discovered by Mering, consists of colorless crystals soluble in nine parts of water and one and one-half parts of strong alcohol; possesses a bitter but not unpleasant taste. Both aqueous and alcholic solutions are unchanged by keeping and by weak acids, whilst by calcium oxide they are quickly, and by the alkaline carbonates, slowly decomposed. The melting point of the crystals is 115° C. Experiments on dogs showed that the drug produced no deleterious effect upon the circulation. In artificial digestion slight retardation occurred.

The conclusions drawn by Halasz from 194 administrations of the drug in thirty-one different patients—affected with insomnia from cardiac trouble, phthisis, neuralgia, bronchitis, emphysema, disease of the spinal cord, and of the stomach, chronic alcoholism, etc.—are as follows:

That chloralamide is a good hypnotic, but not absolutely certain in its effect. The dose is from two to three grms. It is seldom of use where the insomnia is dependent upon pain or cough. It has no bad effect upon the heart or circulation, and may be administered with safety in valvalur lesions, cardiac weakness, and arythmia. It

is not free of after-effects; in many cases headache, and in some dizziness, weakness, and dryness of the throat, and in a few vomiting followed its administration. A cumulative effect was not noticed, nor was any tendency to the formation of a habit observed.

Alt has also given the results of his experience with the drug. On the heart and pulse no effect, even in doses of four grms. In four healthy persons, in order to test the effect on digestion, he gave from three to four grms., together with a test meal, and found after three and a half hours that digestion had proceeded normally and no unpleasant effects were observed on the part of the stomach. Four grams. given to two healthy women produced in both, an hour after administration, dizziness and hebetude, and in one there was soon added a condition resembling intoxication with excitement and unceasing talkativeness, whilst the other complained of giddiness and reeling, headache, especially in the occipital region, with nausea and vomiting. Washing out the stomach of the last-mentioned woman showed it to be empty, and the vomiting did not cease even after this procedure There was no change in the pulse outside of a slight increase in frequency.

The drug was administered to forty-one persons suffering from insomnia due to different causes, 196 doses being given, and he concludes from the results of these observations that in many cases it causes sleep, especially in simple insomnia, and exerts no bad effects either on the circulation, respiration, or digestion, and gives rise to relatively few unpleasant effects, and on account of its taste is preferable to amylen hydrate. In the forty-one cases twelve times there was no hypnotic effect obtained from the administration; headache and hebetude in eleven cases were the only unpleasant effects noted. Sleep was produced from one-half to one and three-fourths hours after administration and lasted from three to nine hours. Its sedative effect in small repeated doses was shown in three cases—one of well-marked delirium tremens, another of an excited hypochondriacal patient, and a third of a restless, nervous patient with hallucinations. In four other cases it failed completely. In a well-marked case of chorea in a lad eleven years of age, five days' use of the drug in doses of one grain three times a day resulted in an almost complete cessation of the choreic movements, and eight days' use in a similar case in a

girl who had been treated for fourteen weeks with arsenic without effect, gave a similar result.—W. V., in *Medical Analectic.*

CHLORAMID.—Chloramid, another new hypnotic, has now been extensively tested, as the literature of the subject sufficiently shows. From its composition one would beforehand expect it to have many of the properities of chloral hydrate. It is a combination of chloral with formamid, and forty-five grains of chloramid correspond to thirty grains of chloral hydrate, not by any means an insignificant dose even if the formamid were omitted. It causes sleep in doses of from one to four grammes, not so quickly as chloral hydrate, and in less time than sulphonal. Professor Rabow, writing in *Erlenmeyer's Cbl.*, has not been able to form an opinion as to its action on the vascular system. It had so for shown no disagreeable after-effect as sulphonal has done. It was quite readily taken in tea, wine, and egg. In delirium and in patients much excited it produced no effect in doses of from three to four grammes. It was effective, on the other hand, in the great majority of cases of insomnia from abuse of alcoholics, and also in so-called nervous sleeplessness, neurasthenia, etc.

Prof. Mosler's assistant, Dr. Peiper, of Greifswald, has also communicated his observations to the *D. med. Wochenschr.*, 32, 1889. Two to three grammes were sufficient to procure sleep. In women two grammes were generally sufficient, and in the case of a little girl 0.5 gramme produced sleep lasting three hours. The time of the onset of sleep was various, from half an hour to an hour and a half. In the majority of cases the sleep lasted the whole night through. In others there were interruptions more or less short. No special effect was observed on the appetite, intestinal activity, perspiration, or cough. The feeling of thirst in the morning was increased. On the whole, its best action was produced in nervous agrypnia, in the sleeplessness of spinal affections, bronchial asthma, sub-acute rheumatism, and gastric affections, in which pain was not a very prominent symptom. Headache, giddiness, and a tired feeling was present in several patients the day after the nightly dose, but the troubles were not severe. In the cases in which a comparison was made with chloral hydrate it was in favor of chloramid. Dr. King, of Strassburg (*Therap. Monats.*, 8, 1889),

thinks it superior to either chloral hydrate or sulphonal. Dr. Reichmann, who tried it in Prof. Rugel's clinic, thinks it answers all the requirements of a good hypnotic. In Prof. Strümpell's clinic in Erlangen, in twenty-eight cases the effects were good, in forty-two excellent. In cardiac asthma it appeared to have a specific effect. In organic diseases of the nerves, heart, lung, and kidneys, it did good service. Two to three grammes are the proper dose. Tried in fifteen cases in Bonn (Hagemann and Strauss), the effects were good on the whole. Sometimes one gramme sufficed, but in some as much as four grammes failed completely to produce sleep. Taken as a whole, however, the observations have been very favorable.—*Med. Press*, Sept. 25, 1889, in *Analectic*.

Therapeutical Uses of Erythroxylon Coca.—Laffont, of Paris, criticises the prevailing custom of many physicians who administer the alkaloid of a plant and expect to obtain all the effects of the latter. He states that in the majority of cases, as the alkaloid does not contain all the active principles of the plant, it cannot be preferred except in special cases where the particular action of the alkaloid alone is desired.

For instance, the salt of quinine cannot replace the extract, the wine, or the powder of cinchona, the tonic principles and the essential oils of which doubtless possess a special therapeutic value. He cites the success obtained by Trousseau with the powder of cinchona in checking malarial fevers which had resisted even the largest doses of sulphate of quinine. More especially cocaine cannot replace all the active principles and the essential oils of the leaf of erythroxylon coca.

In 1887 and in 1888, he had demonstrated that coca, by virtue of its active principles, had three very distinct separate actions: 1. As an anæsthetic, acting upon the protoplasm of the terminations of the sensory nerves, preventing the transmission of painful sensations to the centers. 2. As a nerve tonic, producing functional excitement of the cerebral and spinal nerve-centers and increasing the intellectual and muscular activity. 3. As a tonic to the unstriped muscular fibers of the stomach, the intestines, and the bladder, producing functional excitement of the constrictor action of the great sympathetic nerve, with consequent functional exaltation of all the smooth muscular fibers or muscles of organic life.

He ascribes the irregular effects obtained with coca preparations to the varying qualities of those in the market, the majority of manufacturers ignoring the important part played by a proper selection and combination of the different species of coca, as demonstrated by Mariani, of Paris, whose preparations present, through a proper observance of these conditions, unvarying effects. He therefore recommends Mariani's preparations whenever coca is indicated, especially the coca wine, which, as a tonic, in general and mental debility, melancholia, atonic dyspepsia, vocal weakness, anæmia, and weak circulation, is surpassed by no drug at our disposal.—*New York Medical Journal*, December 7, 1889.

The Cure of Tetanus by Destruction of its Bacillus.—Lormani of Milan, has announced his conviction, from experimental experience, that tetanus can be aborted and its virulence overcome by early iodoform treatment of the wound. Iodoform, iodal and bichloride of mercury destroy the bacillus.

The results of his experiments on the neutralization of the microbe of tetanus was five out of six rabbits saved, and clinically among the patients in hospital all recovered when iodoform was opportunely applied, while two patients in whom the local precautionary abortive plan was neglected, died. The communication was made to the Lombard Institute of Sciences last July, giving details of the procedure.

Ocular Defects in the Treatment of Epilepsy.—The commission, of which Dr. Edward C. Seguin was chairman, appointed at the request of Dr. George I. Stevens, to determine the value of correcting ocular defects in the treatment of epilepsy and chorea, etc,, has reported a number of instances of improvement, but no cures.

NEUROPATHOLOGY.

A Dog with Half a Brain.—A most interesting physiological experiment was one recently performed by Dr. Goltz, of Strasburg. It consisted of relieving a dog of the entire left hemisphere of his brain, taken out piecemeal during the course of a month. The dog seemed but slightly inconvenienced by his loss; his voluntary movements were not impaired. The right paw was

evidently weaker than the left, but when his food was covered with earth and straw and his left paw held, he would uncover the food with the right one. Some rotatory troubles were also observable.—*Bulletin Medicale*, September 15, 1889.

Angina Pectoris Caused by Compression of the Sympathetic Nerve.—From the majority of dissections, it has been found that the cause of angina pectoris is in all probability an irritation of one of the three nerves which assist in respiration: the phrenic, the vagus, and the sympathetic nerve; and, as a rule, the seat of the trouble is in the thorax. An exception to this rule was observed in the following case, which is reported in the *Deutsche Medizinal Zeitung* for August 1st, by Dr. Humbert Mollière.

The patient, a man fifty-nine years old, who for ten years had been troubled with a cough, and two months before had had profuse diarrhea with pain in the abdomen, and was greatly emaciated. In conjunction with the cough, he was also troubled by frequent and long-continued attacks of angina pectoris of a most severe form. Upon physicial examination he was found to be suffering from bronchial catarrh, but no abnormal condition of the abdomen was found. For the next few days the attacks became much more frequent, and the patient rapidly lost strength, and finally succumbed while suffering from an acute attack of the angina, in spite of all that was done to relieve his sufferings.

At the autopsy it was found that the mesenteric and the prevertebral nerve ganglions had undergone cancerous degeneration, and that portion of the sympathetic nerve between the stomach and the pancreas was surrounded and compressed by a carcinomatous mass of lymphatic glands.

Emphysema was found in both lungs, as well as secondary carcinomatous nodules. The bronchial and pulmonary nerve ganglions were entirely intact, the ends of the vagus and phrenic nerves extended to the solar plexus. This last was compressed in such a way that it was undoubtedly from this cause that the angina had proceeded. It is most probable also that in an analogous manner an irritation of the ends of the sympathetic nerve, which are in the mucous membrane of the bowels, would also give rise to angina pectoris.—*Med. and Surg. Report.*

Bilateral Hemiataxy.—Dr. Demange cites a case of symptomatic ataxy with symmetrical lesions of the brain, resembling two others which he published in the *Revue de Médecine*, in 1883. The lesion was in the internal capsule. There was no descending degeneration.—[Report of Drs. Bourneville and Sollier, Paris, in the *Satellite*.]

Double Athetosis.—MM. Blocq and Blies (*Revue de Méd*.) record their experiences in this disease, first described by Clay Shaw, and refer it, through results of autopses, to encephalic sclerosis. MM. Bourneville and Pilliet, in *Arch. de Neurol*, describe two similar cases which they found clinically to be very characteristic. Finally; MM. Dèjérine and Sollier presented to the Anatomical Society the first case of double athetosis in early childhood, which was followed by an autopsy. They found an asymmetry of the brain, the right hemisphere weighing forty grammes more than the left. The posterior lobes were undeveloped as far as the ascending frontal convolution; beyond this they were symmetrical. The layers of gray matter were normal and the cellular elements equally so. There was no degeneration of the cord.

M. Blocq observed a case of double athetosis, in which it was impossible to discover any lesion of the central nervous system at the autopsy. The pathology of this affection is still very obscure.—[*Ibid.*

Convolution of Broca.—Dr. George Hervé, professor in the school of Antwerp, has published a monograph on the convolution of Broca, where he has compared the brain of man with the fœtus and with that of other animals. The cerebral type of the primate is a type of two and not three frontal gyri, and the convolution of Broca does not appear in the series beginning with the anthropoid apes, and it is the same with the anterior horizontal limb of the fissure of Sylvius. It forms of itself a second primitive row, and in reality constitutes, in the ape and man, a fourth frontal convolution, for the second frontal is really two. In the fœtus the development of the convolution of Broca agrees with the zoological series; that of the right side appears first. With the microcephal it is absent, or nearly so, as in the ape and rudimentary. In idiots, imbeciles, deaf-mutes, and certain lower races of man, it is atrophied, rudimentary,

or arrested in its development. In the intellectual its complexity is ordinary, proportionate to the power of its functions.

Sudden Blindness from Bilateral Lesions of the Occipital Lobes.—After having related a number of cases, Chauffard cites a personal experience of an old man, who, having been hemiopic for some time, suddenly became completely deaf. The field of perceptive vision was alone injured; that of memory was preserved. There was no psychic blindness. There was found destructive lesions of the extreme posterior extremityly of the occipital lobes.—*Revue de Médecine.*—[*Ibid.*

The Bristle-Shaped Bacillus of Tetanus has lately been demonstrated by Dr. Kitasato, of Tokyo, Japan, before the German Surgical Congress. He having found it and isolated it from other bacteria in the Berlin Hygienic Institute. Tetanus serum began to show, after twenty-four hours, the characteristsc bristle-shaped tetanus bacilli along with other micro-organisms. Exposing the culture fluid to a water-bath temperature of 80° C. destroyed the vitality of the spores found with them, leaving only the bacilli of tetanus inoculations. With these developed tetanus in which the bacilli were again found.

Fibrinous Membranes within the Spinal Canal.—Dr. Joseph Wigglesworth reports three cases of general paralysis in which he found, *post-mortem*, fibrinous membranes in connection with the spinal cord. In the first case the membrane was from one to two lines in thickness, and was found lying upon the external surface of the dura mater on its posterior aspect. It extended from the third to the seventh dorsal vertebra, and was attached both to the dura mater and to the walls of the spinal canal.

In the second case the membrane was similar to the foregoing one. In the third case it extended from the lower cervical to the lower dorsal region, and involved the roots of some of the spinal nerves. It was everywhere coherent, and could be detached as a separate membrane. The three membranes were all *external* to the dura mater, in which respect they differ from the similar formations which are frequently discovered in the cranium, especially in *post-mortems* of the insane. Dr. Wiggles-

worth believes that the membranes described are the result of a hemorrhagic effusion within the spinal canal; that an inflammatory process is not concerned in their formation, and that they would be discovered much more frequently if sought. In the third case he suspected the presence of the membrane before the death of the patient, on account of the symptoms of irritation of the spinal nerves which existed, to wit, retraction of the head and rigidity of the extremities.—*British Medical Journal.*

NEUROPHYSIOLOGY.

THE PRODUCTION OF CUTANEOUS ELECTRIC CURRENTS IN MAN.—This was the subject of an address by M. Tarchanoff at the meeting of the Biological Society of Paris, June 29, 1889. The studies were made by means of a very sensitive galvanometer, together with a special device for preventing spontaneous movements. The electrodes being in position, the production of cutaneous currents was determined under the influence of the most various excitations, a call in a loud voice, a shock, etc. The psychical sensations of heat and cold suggested to the subject determined extremely delicate reactions of the galvanometer. When the left hand was in contact with the electrodes and it was suggested to the subject that his right hand was warm and commencing to perspire no effect was observed, but when the left hand was spoken of a considerable deviation of the needle of the instrument at once occurred. Here was an electric discharge of purely psychical origin which might, to a certain extent, be compared to the discharge of a torpedo. In prosecuting these experiments it was necessary to choose regions rich in sudoriparous glands. These glands play a notable part in the production of the cutaneous currents. A person in a state of expectant attention causes the needle to oscillate incessantly. It is necessary, before beginning the experiments, to secure the utmost tranquility in the subject, in order to determine the zero of the galvanometer. Another example forcibly demonstrates the effect of mental effort. An easy act of multiplication produces no result. But if a person is asked to perform a difficult problem of the same kind, the needle is deflected in proportion to the difficulty. Muscular movements give rise to deviations which must be attributed

not merely to the acts themselves, for the effect is disproportionate, but to the effort of will which they necessitate. The deviation is, in fact, greater when the subject looks at the tip of his nose than when he raises his arm, even if some degree of force be used. Fatigued persons produce no reaction. M. Tarchanoff thinks that the sudoriparous glands exercise a regulative influence upon the production of these cutaneous currents. He considers it a thermic regulation, favoring cutaneous evaporation and disassimilation in the course of cerebral acts, and dependent upon them.—*Le Progrès Médical.*

Poole's Theory—Epilepsy.—With the experiments on the cervical sympathetic and splanchnic nerves before us, how can we say that the anæmia, or rather ischæmia, of the brain, which ushers in the epileptic seizure, is due to "excessive action of the spinal centers," compelling the spasm or contraction of the arterial muscles on which this ischæmia depends? Have we not had proof that the arterioles contract best when their vaso-motor nurves are cut, or are paralyzed, or dead; and if so, are we not bound to hold that not excess but failure of nerve power is the proximate cause of the epileptic paroxysm? And is not the question of such excess or failure of nerve force a most practical one in determining the treatment?

How far is our comparative failure to cure this terrible disease due to our approaching it under the ægis of an erroneous theory—that nerve force here needed to be depressed rather than exalted? It is well for mankind that in this, as in some other instances, our practice has sometimes been directly at variance with the theory of the day. Thus we find Dr. Anstie assuring us that "our best anti-spasmodics are stimulants"; and that "alcohol is one of the best remedies possible in the convulsions of teething in children." (Stim. and Narcot., pp. 123, 129).

"*Morbid Nerve Force*".—Spasms and convulsions frequently take place in the very act of dying, and under circumstances in which nerve force ought to be regarded as at a low ebb; as for example, in uræmic blood-poisoning. It is customary in some quarters to attribute these or other spasms to a "morbid irritability" or a "morbid nerve force"; as if the central nervous ganglia were capable of producing two kinds of nerve force, one

normal and the other "morbid," and the spurious variety of attaining extraordinary power just in proportion to the complete failure of nerve force proper. A little reflection, I think, will show that this is untenable. Nerve force may be increased or diminished: its condition may be one of excess or of failure, but that it may present a duplicate of itself, and its *alter ego* produce effects, for which nerve force proper is inadequate, and yet is responsible, is surely yielding too much to the exigency of an erroneous theory.

Medical literature presents numerous examples of this appeal to a "morbid nerve action," and it is rather surprising to find such a writer as the late Dr. Anstie referring to "the explosive disturbances of nerve force which give rise to the convulsions of tetanus" as "something quite different in kind" from healthy nerve action. (Neural., p. 8). Now, if a nerve center be thrown into action otherwise than by the exercise of its normal activity, then it is no longer the nerve center which is acting, but a power extraneous to itself; a modern Archæus, for which scientific medicine ought to have no place. And if tetanus be really due to an explosive activity of the nervous centers which are discharging nerve force with unwonted activity, surely to administer stimulants in such a case ought to be injurious, if not fatal! And yet we find that Dr. W. A. Hammond of New York has produced statistics in which "stimulants" stand at the very head of the list of curative agents in tetanus. (Dis. Nerv. Syst., 4th Ed., p. 541). Here again the theory of the day is surely out of joint with the clinical facts.

Chloroform and Relaxation of Anæsthesia.—I have been asked how the rigidity, at first and subsequently the relaxation, of the muscles during anæsthesia are to be accounted for on this theory. The answer is easy. The rigidity is due to the partial paralysis of motor nerve influence, setting the contractile power of the muscles free to act. This occurs at a comparatively early stage of the process. The relaxation which attends complete anæsthesia is due to the loss of contractile power on the part of the muscle, owing to the absence of oxygen in sufficient quantity in the blood; for chloroform tends to prevent the oxygenation of the blood (Ringer's Ther., p. 286), and renders it venous in character. In this way the chemical processes on which the generations of contrac-

tile focce in the muscle depends are retarded. (Lyman's Anæsthetics, p. 28; Bryant's Surgery, Amer, Ed., p. 318) Dr. M. Foster states that "blood is not only useless, but injurious, unless it be duly oxygenated." And again, "if venous blood be driven through a muscle the irritability of the muscle is lost even more rapidly than in the entire absence of blood." (Phys., pp. 883, 126). This, I think, will be accepted as a satisfactory explanation, in strict accord with physiological facts. The relaxation, however, is not so great but that faradization of the muscle will induce a further degree of contraction; showing that the contractile energy of the muscle, though weakened, is not lost. That the contractile power of the muscle is thus lowered offers a bar to the prolonged or complete administration of chloroform during parturition, for obvious reasons.

The mode in which anæsthetics induce arterial contraction, as explained by Dr. Henry M. Lyman, may be quoted as follows:—"Chloroform acting through the blood upon the nervous apparatus in the walls of the vessels, tends to paralyze the sensory endings of the nervous fibrils. This means a diminution of the normal impulses, which should continually reach the central intraparietal ganglia," in consequence of which "the motor cells no longer experience the inhibitory influence which they should receive from the periphery of their territory, and a liberation of a motor impulse excites muscular contraction, and we have vascular spasm," etc., as the result (Anæsthesia, etc., page 27). This, of course, is purely hypothetical. The motor nerve fibrils in the muscular bands are ignored altogether, while a purely imaginary "inhibitory" system is invoked to meet the exigency of the occasion. How much better to hold that the motor nerve fibrils also are more or less paralyzed, and the arterial muscle directly set free to contract; thus dispensing with the inhibitory apparatus altogether.

The Nerve-muscle Preparation.—It is impossible here to enter on a critical analysis of the experiments on nerve and muscle, which a careful examination wiil show to be wholly consistent with the views here advocated. When in a nerve-muscle preparation, the muscle is made to contract by applying to the nerve trunk the shock of electricity, the corrosion of a chemical agent as a quick stroke, what is there to show that the effect on the nerve is not to cause a temporary cessation of nerve

influence, rather than the production of stimulus? There is really nothing, and the character of the impulse is merely a matter of inference. Even in what is called the rheoscopic frog, where contraction in one muscle imparts an influence whereby another muscle is made to contract, the molecular or electrical wave may as well be paralyzing as stimulating.

This Theory not New.—In hastening to conclude, let me state that, whether this theory of the antagonism of nerve and muscle be true or false, I am not entitled to the praise—or blame—of originating it. It was broached so long ago as 1832 by Dr. West, an English physician, and is said to have met with some countenance from Sir Charles Bell. Dr. C. B. Radcliffe, F. R. S., in his work on "Epilepsy, Paralysis and Pain," has warmly adopted the views of Dr. West, and offers some strong evidence in support of the proposition, that, "there is reason to believe that ordinary muscular contraction is associated with a deprivation of nervous influence, and not with a contrary state of things." I have here endeavored to support the same thesis, but with evidence drawn from other sources.

[From a *brochure* on the necessity for a modification of certain doctrines regarding the inter-relations of nerve and muscle, by Dr. Thos. W. Poole.]

NEUROSEMIOLOGY.

Althaus on Epilepsy after Vaccination.—On May 23d, a young man was admitted to a London hospital as an out-patient, in whom vaccination appears to have acted as the exciting cause of epilepsy. Dr. Althaus states that he has seen a number of cases, in very young children, in which the first occurrence of epileptic convulsions was attributed by the parents to vaccination, but that in all those cases there appeared to be reasonable doubts. In the present case, however, it is perfectly clear that the blood-poisoning caused by re-vacciaation was, indeed, the exciting cause of the seizures.

A letter carrier, aged 19, a sturdy-looking lad, comes from a healthy family, and is one of ten living children, none of whom have shown the slightest trace of a neurotic tendency. As a boy he had measles, but no other

ailment. He had been vaccinated as a baby, but, in accordance with the regulations of the post-office, he had to be re-vaccinated when, in June last year, he applied for a situation as postman. At that time he was perfectly well and strong, and his habits had always been steady. The vaccine took very well, but the lad soon afterwards began to feel ill, and swellings appeared in almost all the joints of the body. He was, however, in bed only for a day, which excludes the idea of rheumatic fever. He soon got up again and began his duties, and had his first epileptic fit about a month after he had been inoculated: Since then he has had fits about once a month, and they occur both in the daytime and at night. He has fallen down unconscious in the streets on several occasions, while delivering letters, and has been on the sick-list four times during the last eleven months, for a month or three weeks at a time. On the last occasion when he was ill he had fourteen fits in a single night. The symptoms of the seizure are well marked. He suddenly turns his head to the side, becomes unconscious and rigid, gets black in the face, bites his tongue, foams at the mouth, and is convulsed for three or four minutes, after which he recovers himself. He does not pass the excreta during the fit. If taken in the street, he has a very short aura, and then falls down. In the intervals between the fits he complains of headache, giddiness and loss of memory, but there is no sign of organic brain-lesion.

Of the acute infectious disorders, it is chiefly scarlatina which appears to act as an exciting cause of epilepsy in children; after this comes measles and typhoid fever; but vaccination has not hitherto been credited with producing this complaint. The present case is all the more interesting on account of the age of the patient, at which epilepsy does not commonly originate, and of the perfectly clean bill of health presented by his family and by himself previous to the vaccination. The blood-poisoning, which unquestionably originated in this young man from the inoculation, may have resulted from some slight admixture of blood with the vaccine-matter, although there is no actual evidence that such was the case; but looked upon in this light, it would show once more the supreme importance of the most scrupulous care on the part of vaccinators with regard to this momentous point. —*Br. Med. Jour.*, Sept. 28, 1889.

PSYCHIATRY.

Hypnotism and Insanity.—From the *British Medieal Journal* we learn that at the last August meeting of the British Medical Association, Dr. Auguste Voisin, Physician to the Salpêtriére, discussed the treatment of insanity and neuroses by hypnotic suggestion, and on the application of the method to the moral and instinctive perversion of backward and imbecile children. "Catalepsy ought to be carefully avoided," he said, because the hypnotized individual ought to be able to preserve the use of the senses, especially of hearing, but hypnotism was in his experience useful when it was possible to make use only of suggestion. He concurred with Braid that the hypnotic state originated in the nervous system of the hypnotized person. By hypnotism he erased hallucinations and delusions and disturbances of special and general sensation. Suicidal ideas and acute and furious mania disappeared under its influence. The treatment had also succeeded in the mania and agitation observed during the catamenia. Patients in this category had even remained asleep for from six to eight days. The method had also succeeded in dipsomania and morphinomania. Dr. Voisin had also been fortunate enough to cure obstinate cases of onanism in this way; had applied the method *a la moralisation des enfants depraves.* He had thus completely transfotmed their habits of thought, and had brought them to love the good, whereas they had formerly only loved the evil. He had also succeeded in curing amenorrhea in the insane, which was a frequent cause of nervous and mental troubles; he particularly insisted upon this point as proving it was possible to influence the sympathetic system.

In the discussion which followed Dr. Yellowlees said his attitude of mind toward this paper was simply one of amazement. There was something that cured mania, banished hallucinations, cured love of drink and morphia, stopped masturbation, improved the memory, made imbeciles wise, and bad folks good; moreover, it cured amenorrhea, and the patient menstruated as directed. It resembled nothing so much as the waving of a conjuror's wand, and saying to disease, "Begone!" Moreover, in nine-tenths of the cases the cure was permanent. If all this were true, their vocation was gone, and they must seek some other profession. Dr. Voisin must not deem

them disrespectful if they were a little incredulous as to these wonderful results. It might be that there was something in the vivid Gallic nature that we had not here, or something in Dr. Voisin's method that they did not know. Certainly they had seen no such results from hypnotism here, and certainly he had never heard of results so amazing as those enumerated in Dr. Voisin's paper.

Remarks were made by various other members, some in the same strain as the last, and others confirmatory of Dr. Voisin's results.

COMPLIMENTARY DINNER GIVEN DR. JOSEPH PARRISH, PRESIDENT OF AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY.

The American Association for the Study and Cure of Inebriety, met in annual session in Burlington, New Jersey. The meeting was held at the residence of Dr. Joseph Parrish, the venerable President of the society. A feature of the occasion was an elaborate dinner given by the members in honor of the seventy-first anniversary of their president's birth.

Dr. Parrish is the only original organizer of the association still in the field. His career has been an eventful one. He is a son of the noted Dr. Joseph Parrish, of Philadelphia, and graduated at the University of Pennsylvania in 1844. Soon after he established the *New Jersey Medical Reporter*, which is still in existence. During the war he held a prominent position in the Sanitary Commission of the Government. He organized the Pennsylvania Sanitarium for the Cure of Inebriates, located at Media, and was also at the head of a similar institution in Baltimore. Being an expert on insanity he was invited by the committee in charge to be present at the autopsy of Guiteau, the slayer of President Garfield. In later years physical infirmities have compelled the doctor to withdraw somewhat from active life. He still retains the full vigor of his mental powers, however, and is not unmindful of the promulgation of his theory in a wider sphere. He is a frequent contributor to the public press and to the medical literature of the country. His writings on the scientific treatment of idiocy and inebriety have attracted wide attention.

In his address before the society and invited guests, he recalled the 29th of November, 1870, the day the society came into existence, when, at his request, sixteen

men met in the parlors of the Young Men's Christian Association in New York. They had but one object in view, namely, the study of the cause and career of inebriety, with reference to its prevention and cure. The men, with one exception, had never met before. The late Dr. Parker, of New York, was chosen chairman, and in calling the meeting to order made a brief statement which served as the keynote for all future effort. He said at the outset: "We are met with the augury, 'What is alcohol?' The answer is a poison. Its action upon the living system is like that of opium, arsenic, prussic acid, etc. In small doses it acts as a mild stimulant and tonic. In larger doses it becomes a powerful irritant, producing madness, or a narcotic, producing coma and death."

Since the formation of the society over fifty different hospitals for inebriates have been established in America, and it is estimated that over 2,000 patients are now under treatment. Half of this number are in special houses. They represent most largely the incurable cases, persons who have tried every means found in the pledge, prayer and by moral suasion, and exhausted every resource of home and friends, come as a last resort, expecting extraordinary change and cure. They have been victims of this disease from five to thirty years, and present the most complex and varied degrees of physical and mental degeneration. Yet, notwithstanding this fact, the experience of the few scientific hospitals in the results of treatment, is exceedingly promising. Statistics of over 3,000 cases which have been under treatment at different hospitals, indicate nearly forty per cent. restored and temperate after a period of from six to eight years from the time of discharge from the hospital.

The workings of the society in this country attracted attention abroad, and in 1872 Dr. Parrish and Dr. Dodge were appointed to appear before a committee of the House of Commons of England, and give their experience in the treatment of inebriety. A full stenographic

report of their testimony was taken and published by the British Government, and the committee made a unanimous report adopting the recommendations of the delegates. Since that time Dr. Parrish has made several trips abroad upon the same mission.

The movement is making great progress in England. Private homes for the care of inebriates are being established, some of them on a most elaborate scale, notably the Dalrymple Home at Rickmansworth. At the meeting extracts were read from a letter written by Dr. Norman Kerr, an eminent physician of London, a faithful friend of the inebriate and an eloquent advocate for legislative aid in his behalf, in which he related the growth of the movement in Great Britain. By way of illustrating the hold it is gaining on the judiciary mind in that country, he cites the ruling by Lord Young, at Glasgow, last August, on a charge against a mother, of child murder by neglect and starvation. Owing to her intoxication culminating in delirium tremens, the judge would not allow the case to go to the jury, declaring that the court could not hold excessive drinking to be a crime, and delirium tremens was insanity involving no responsibility.

At stated periods Colonial and International Congresses on Inebriety are held, the last of these taking place in London, July, 1887. The sessions are largely attended by members of the Legislature, ministers of religion, physicians, lawyers, philanthropists, abstainers, non-abstainers, prohibitionists and other friends of the habitual drunkard.

In 1877 the society began the publication of the *Journal of Inebriety*, which has been the medium through which most of the literature of the subject has been presented. The tenor of the speeches were that the theories advanced by the society had passed the crucial test, and the students of science who have examined the facts, find the disease of inebriety and its curability in special hospitals supported by such an array of evidence as to demand its full acceptance.

The members advocate special legislation for the ine-

briate. The legal control of inebriates in this country is very imperfect, the best laws in force being in Connecticut, where inebriates are given power to voluntarily commit themselves, or be committed by their friends without the formality of appearing before a judge or court. In other States they are committed to asylums in about the same way as the insane are.

The committee in charge of the dinner and reception were: Albert Day, M. D., Boston; Lewis D. Mason, M. D., Brooklyn; Thomas D. Crothers, M. D., Hartford; William G. Parrish, M. D., and Professor W. D. T. Travis, Burlington.

The doctor's handsome cottage on Locust avenue was elaborately decorated with flowers in honor of the occasion. Two hundred cards of invitation had been sent out. In addition to the members of the society there were about one hundred invited guests present. Dr. Albert Day, of Boston, presided and delivered an address of welcome. Dr. L. D. Mason, of Brooklyn, vice-president, spoke at length of the rise and progress of the society. He was followed by Dr. T. D. Crothers, of Hartford, secretary and editor of the association's paper, the *Journal of Inebriety*, who eulogized their President, Dr. Parrish, and told of advancement made in the study of inebriety in its various phases.

The following resolutions, offered by Dr. Crothers, were unanimously adopted:

WHEREAS, In the providence of God we are permitted to meet our honored President, Dr. Joseph Parrish, on the occasion of the seventy-first anniversary of his birth, and mingle our personal congratulations with those of his numerous friends. Therefore, be it

Resolved, That in the name of our association, whose members are scattered in almost every clinic of the world, we extend our warmest greetings and most sincere hopes that many more anniversaries of his life may follow; that we shall have the benefit of his counsel and the cheer of his presence far down into the future.

Resolved, That as a pioneer in this great "dark conti-

nent" of humanitarian effort, we recognize his work and its imperishable value, and we offer him our most hearty thanks and assurances that he has built a monument that will serve as a guide for us and others long after we have all passed away.

Resolved, That his personal efforts in behalf of our association, and writings on the subject of inebriety, have given an impetus to the work which will be felt in the long centuries to come. And we most earnestly desire to make this public record of our indebtedness to him and the obligations of science for his most earnest and persistent labors to secure the full recognition of the fact of the disease of inebriety and its curability in asylums.

Dr. Charles Sheppard, Brooklyn, and Dr. N. Roe Bradner, Philadelphia, read papers treating on the same subject. Original poems were read by Professor Travis, Burlington, and Frank B. Lee, Trenton. Brief speeches of eulogy were made by Mr. George Milliken, Philadelphia; Dr. Hiram Corson, Montgomery County, Pa.; Dr. Atkinson, *Medical Reporter*, Philadelphia; Rev. Eli Gifford, Millville; Rev. A. E. Ballard, Ocean Grove; Dr. T. T. Price, Tuckerton; Rev. Edward B. Hodge, Burlington, and Dr. W. B. Ulrich, Chester, Pa.

The guests were Dr. Alice Bennett, Norriston; Charles S. Wells, Elwyn, Pa.; Dr. John C. Hall, Frankford; Dr. John N. Thompson, New York; Benjamin F. Lee, clerk of the Supreme Court, Trenton; J. J. Levick, Philadelphia; Dr. Charles H. Thomas, Philadelphia; Dr. George Brown, Barre, Mass.; Joseph M. Bellford, New York; Belmont Perry, Woodbury; Dr. George Goodell, Philadelphia; Dr. Mary Dunlap, Vineland; Rev. J. B. Haines, Pennington; Emily E. Williamson, Elizabeth, N. J.; Sarah Parrish, Philadelphia; Susanna Dilwyn Wharton, Philadelphia; Dr. J. Howard Pugh, Dr. Franklin Gauntt, Dr. F. Allen Gauntt, Dr. Walter E. Hall, Dr. E. F. Rink, Dr. John B. Cassady, Dr. Joseph Shreve, Dr. P. J. Styer, Dr. Joseph Shall, John McNeal, Rev. T. M. Eastwood, Howard Flanders, A. B. Weaver, Joshua Taylor, all of Burlington.

EDITORIAL.

[*All Unsigned Editorials are written by the Editor.*]

Tenth International Medical Congress, Berlin, 1889.—*Regulations and Programme.*—I. The Tenth International Medical Congress will be opened in Berlin on Monday, August 4th, 1890, and will be closed on Saturday, August 9th.

II. The Congress shall consist of legally qualified medical men who have inscribed themselves as members, and have paid for their card of membership. Other men of science who interest themselves in the work of the Congress, may be admitted as extraordinary members.

Those who take part in the Congress shall pay a subscription of twenty marks (one pound stg. or $5.) on being enrolled as members. For this sum they shall receive a copy of the Transactions, as soon as they appear. The enrollment shall take place at the beginning of the Congress. Gentlemen may, however, be enrolled as members by sending the amount of the subscription to the treasurer with their name, professional status and residence appended.

III. The object of the Congress is an exclusively scientific one.

IV. The work of the Congress will be discharged by eighteen different sections. The members shall declare upon enrollment to which section or sections they intend more particularly to attach themselves.

V. The committee of organization shall, at the opening sitting of the Congress, suggest the election of a definite committee (or bureau) which shall consist of a president, three vice-presidents, and of a number—as yet undetermined—of honorary presidents and secretaries.

At the first meeting of each section a president and certain number of honorary presidents shall be elected; these latter shall conduct the business of the sections in turn with the president.

On account of the different languages employed, a suitable number of secretaries shall be chosen from among

the foreign members. The duties of the foreign secretaries shall be confined to the sittings of the Congress.

After the termination of the Congress the editing of the Transactions shall be carried out by a committee specially appointed for this purpose.

VI. The Congress will assemble daily, either for a general meeting or for the labors of the different sections.

The general meetings will be held between eleven and two o'clock. Three such meetings will take place.

The time for the sittings of the various sections will be fixed by the special committee of each section, it being understood, however, that no such sittings are to take place during the hours allotted to the general meetings.

Joint sittings of two or more sections may be held, provided that the bureau of the Congress can offer suitable rooms for such sittings.

VII. The general meeting shall be devoted to

(*a*) Transactions connected with the work and general management of the Congress.

(*b*) Speeches and communications of general interest.

VIII. Addresses in the general sittings, as well as in any extraordinary meetings which may be determined upon can only be given by those who have been specially requested by the Committee of Organization.

Proposals relative to the future management of the Congress must be announced to the Committee of Organization before July 1st, 1890. The committee shall decide whether these proposals are suitable to be introduced for discussion.

IX. In the sittings of the sections questions and problems will be discussed, which have been agreed upon by the special Committees of Organization. The communications of those appointed by the committee to report on a subject, shall form the basis of discussion. As far as time allows, other communications or proposals, proceeding from members and sanctioned by the Committee of Organization, may also be introduced for discussion. The Bureau of each section decides as to the acceptance of such offered communications, and as to the order in which they shall come before the meeting, always provided that this point has not been already determined in the sitting itself by a decree of the section.

Scientific questions shall not be put to the vote.

X. Introductory addresses in the sections must as a rule not exceed *twenty minutes in length.* In the discussions no more than *ten minutes* are allowed to each speaker.

XI. All addresses and papers in the general and sectional meetings must be handed over to the Secretaries, in writing, before the end of the sitting. The Editorial Committee shall decide whether, and to what extent, these written contributions shall be included in the printed Transactions of the Congress. The members who have taken part in the discussions will be requested to hand over to the Secretaries, before the end of the day, in writing, the substance of their remarks.

XII. The official languages of all the sittings shall be German, English and French. The Regulations, the Programme and the Agenda for the day will be printed in all three languages.

It will, however, be allowable to make use of other languages than the above for brief remarks, always provided that one of the members present is ready to translate the gist of such remarks into one of the official languages.

XIII. The acting President shall conduct the business of each meeting according to the parliamentary rules generally accepted in deliberative assemblies.

XIV. Medical students and other persons, ladies and gentlemen who are not physicians, but who take a special interest in the work of a particular sitting, may be invited by the President or be allowed to attend the sitting by special permission.

XV. Communications or enquiries regarding the business of separate sections, must be addressed to the managing members thereof. All other communications and enquiries must be directed to the General Secretary, Dr. Lassar, Berlin NW., 19 Karlsstrasse.

SPECIAL SECTIONS.—COMMITTEES OF ORGANIZATION.—**The names which appear in italic type are those of the managing members:**

1. Anatomy.—Flemming, Kiel; Hasse, Breslau; *Hertwig*, Berlin W., Maassenstr. 34; His, Leipzig; v. Kölliker, Wurzburg; Kupffer, Munchen; Merkel, Göttingen; Schwalbe, Strassburg; Wiedersheim, Freiburg.

2. Physiology and Physiological Chemistry.—Bernstein, Halle; Biedermann, Jena; *du Bois-Reymond,* Berlin W., Neue Wilhelmstr. 15; Heidenhain, Breslau; Hensen, Kiel; Hüfner, Tubingen; Hoppe Seyler, Strassburg; H. Munk, Berlin; Voit, Munchen.

3. General Pathology and Pathological Anatomy.—Arnold, Heidelberg; Bol inger, Munchen; Grawitz, Greifswald; Heller, iel; Ponfick, Breslau; v. Recklinghausen, Strassburg; *Virchow*, Berlin W., Schellingstr. 10; Weigert, Frankfurt a. M.; Zenker, Erlangen.

4. Pharmacology.—Binz, Bonn; Böhm, Leipzig; Filehne, Breslau; Jaffé, Königsberg; *Liebreich*, Berlin NW., Dorotheen-Strasse 34a; Marmé; Göttingen; Penzoldt, Erlangen; Schmiedeberg, Strassburg; Hugo Schulz, Greifswald.

5. Internal Medicine.—Biermer, Breslau; Gerhardt, Berlin; Leube, Wurzburg; *Leyden*, Berlin W., Thiergarten-Strasse 14; Lichtheim, Königsberg; Liebermeister, Tubingen; Mosler, Greifswald; Naunyn, Strassburg; v. Ziemssen, Munchen.

6. Diseases of Children.—Baginsky, Berlin; *Heuoch*, Berlin W., Bellevuestr. 8; Heubner, Leipzig; Kohts, Strassburg; Krabler, Greifswald; Ranke, Munchen; Rehn, Frankfurt a. M.; Soltmann, Breslau; Steffen, Stettin.

7. Surgery.—Bardeleben, Berlin; *v. Bergmann*, Berlin NW., Alexander Ufer 1; Czerny, Heidelberg; König, Göttingen; v. Lotzbeck, Munchen; Schede, Hamburg; C. Thiersch, Leipzig; Trendelenburg, Bonn; Wagner, Königshutte.

8. Obstetrics and Gynecology.—Fritsch, Breslau; Gusserow, Berlin; Hegar, Freiburg; Hofmeyer, Wurzburg; Kaltenback, Halle; Löhlein, Giessen; *Martin*, Berlin NW., Moltkestr. 2; Olshausen, Berlin; Winckel, Munchen.

9. Neurology and Psychiatry.—Binswanger, Jena; Emminghaus-Freiburg; Erb, Heidelberg; Flechsig, Leipzig; Fürstner, Heidelberg; Grashey, Munchen; Hitzig, Halle; Jolly, Strassburg; *Laehr*, Berlin, Zehlendorf.

10. Ophthalmology.—O. Becker, Heidelberg; Eversbusch, Erlangen; v. Hippel, Giessen; Hirschberg, Berlin; Leber, Göttingen; Michel, Wurzburg; Schmidt-Rimpler, Marburg; *Schweigger*, Berlin NW., Roonstr. 6; v. Zehender, Rostock.

11. Otology.—Bezold, Munchen; Bürkner, Göttingen; Kirchner, Wurzburg; Kuhn, Strassburg; Kessel, Jena; *Lucae*, Berlin W., Lutzowplatz 9; Magnus, Königsberg; Moos, Heidelberg; Trautmann, Berlin.

12. Laryngology and Rhinology.—Beschorner, Dresden; *B. Frankel*, Berlin NW., Neustädtische Kirchstr. 12; Gottstein, Breslau; A. Hartmann, Berlin; Jurasz, Heidelberg; H. Krause, Berlin; Michael, Hamburg; Schech, Munchen; M. Schmidt, Frankfurt a. M.

13. Dermatology and Syphilography.—Caspary, Königsberg; Doutrelepont, Bonn; Köbner, Berlin; *Lassar*, Berlin NW., Carlstr. 19; Lesser, Leipzig; G. Lewin, Berlin; Neisser, Breslau; Unna, Hamburg; Wolff, Strassburg.

14. Diseases of the Teeth.—*Busch*, Berlin NW., Alexander-Ufer 6; Calais, Hamburg; Hesse, Leipzig; Fricke, Kiel; Holländer, Halle; Miller, Berlin; Partsch, Breslau; Sauer, Berlin; Weil, Munchen.

15. HYGIENE.—Flügge, Breslau; Gaffky, Giessen; Graf, Elberfeld; F. Hofmann, Leipzig; R. Koch, Berlin; Lehmann, Wurzburg; *Pistor*, Berlin W., v. d. Heydtstr. 13; Wolffhugel, Göttingen; Uffelmann, Rostock.

16. MEDICAL GEOGRAPHY AND CLIMATOLOGY.—(History and Statistics.)—Abel, Stettin; Brock, Berlin; Dettweiler, Falkenstein; Falkenstein, Lichterfelde; Finkelnburg, Bonn; Guttstadt, Berlin; *A. Hirsch*, Berlin W., Potsdamer-Strasse 113; Lent, Köln; Wernich, Cöslin.

17. STATE MEDICINE.—Falk, Berlin; Gunther, Dresden; v. Hölder, Stuttgart; Knauff, Heidelberg; *Liman*, Berlin SW., Königgrätzer-Strasse 46a; Schönfeld, Berlin; Schwarz, Köln; Skrzeczka, Berlin; Ungar, Bonn.

18. MILITARY HYGIENE.—v. Coler, Berlin; v. Fichte, Stuttgart; Grasnick, Berlin; Grossheim, Berlin; *Krocker*, Berlin W., Magdeburger Platz 3; Mehlhausen, Berlin; Mohr, Munchen; Roth, Dresden; Wenzel, Berlin.

The Cure of the Drunkard, and the Habeas Corpus.—Given the care of a competent neurological physician, a suitable home, attractive within and in its environments, and a sufficiently lengthy residence not only to eliminate all alcohol from the blood and tissues but to restore the normal nerve tone of the individual before the vice became a confirmed disease or the disease had led to the vicious indulgence, and the cure of the inebriate need never be a doubtful result any more than the cure of any other curable disease of the nervous system involving the brain and mind in erratic action, and morbid, hardly controllable or resistless impulse. It is as amenable to treatment as most of the toxic constitutional neuroses, as curable as the opium paralysis, though not so readily or in so brief a time.

The chief obstacle to the inebriate's cure is his morbidly influenced will and misdirected law. The inebriate too often thwarts the best endeavors of his friends, by misjudging himself and insisting that he does not require treatment when he is sober, and the law helps him to ruin himself and those dependent upon him or interested in him—hurting the innocent with the guilty—if in such a case there be guilt, and we think there is a degree of responsibility attaching to the drunkard who in such a crisis willfully and selfishly decides against wife and family and friends—by interposing the right of *habeas corpus*, which takes the neuropathic inebriate out of the hands of wife, children or parents, and gives him over to his own misguided, because morbidly-guided, and disease-influenced will.

It would be easy enough to regulate the matter in the drunkard's interest by law by providing that,

First. No confirmed inebriate, pronounced so by a competent court upon proper medical testimony, should ever attain his legal majority, with property or elective franchise rights, until pronounced cured of his inebriety, by a court of competent jurisdiction. And,

Second. To secure proper control of the inebriate, in his own and in the interest of his family, every State should punish by statute for the voluntary surrendering of the right of *habeas corpus* by periodical inebriates, for periods not less than three months nor more than two years, which could not be revoked, at the will of the party, if consigned to a properly chartered institution under proper medical management.

The wives and children, mothers, fathers and friends of the inebriate have rights and interests to be guarded by law where practicable, as sacred and as dear as the personal liberty of the inebriate, and he and the law ought to consider them.

The Johns Hopkins Hospital, Baltimore, Md., U. S. A.—The "Johns Hopkins Hospital Reports."—Dr. Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, announces the publication, through the Publication Agency of the Johns Hopkins University, of a series of the "Johns Hopkins Hospital Reports," which will contain medical, surgical and gynecological monographs, reports of cases, reports of investigations in bacteriology and pathology, and a *résumé* of the work of the pathological, clinical and hygienic laboratories of the hospital.

Volume I., for 1889, now in an advanced state of preparation, edited by Dr. W. H. Welch, Director of the Pathological Laboratory and Pathologist to the hospital, will contain the following table of contents:

Hemorrhagic Infarction, Repairs of Intestinal Suture, Reversal of the Intestine, Extirpation of the Thyroid Gland, The Effects of Artificial Heat upon Animals, Hog Cholera, Behavior of Bacteria in Water, Bulbar Paralysis, and Cerebellar Sclerosis. It will be illustrated by colored lithographs and plates.

Volume II., to be issued during 1890, in fasciculi of about sixty-four pages each, will contain full reports of cases observed in the various departments of the Hospital and Dispensary. In addition to surgical and gynecological memoirs, the following monographs will be published:

Hepatic Fever, Peritoneal Tumors of Tubercular Origin, A Case of Raynaud's Disease, Tubercular Pericarditis, Renal Complications of Typhoid Fever, Post-febrile Insanity, Acute Tuberculosis in a Suckling, Present Status of our Knowledge of Malaria. The first fasciculus of Volume II. is now ready.

The price of each volume complete will be $5. Single fasciculi of Volume II. will be sold at 50 cents.

These volumes will be sent in return for similar reports from other hospitals or societies and in exchange for medical and surgical journals.

Substitution in Proprietary Remedies and Prescriptions.—The *Weekly Medical Review*, St. Louis, Mo., December 14, 1889, thus comments on the practice all too common among druggists not actuated by the highest standard of professional honor:

In Kansas City recently seven druggists were each fined $500 and costs for counterfeiting a trade mark preparation, the ingredients of which are well known. This suggests some thoughts on a subject which appears to have received but little consideration from the profession in general. Is it proper for the physician knowingly to countenance the extemporaneous preparation by his druggist of such remedies, the formulas of which have been given to the profession and approved by them? In other words, is it proper to allow the substitution of an extemporaneous preparation for one with which we are familiar, upon whose effects we have learned to rely?

We believe that the question is very similar to the one of substitution in general, upon which there is little difference—even amongst doctors.

It is reasonable to suppose that the company manufacturing a remedy of this kind, dependent as it is for its sale, on the satisfaction which it affords to the profession, and the approval which they in turn bestow on it, would ever observe the strictest precautions in the procurement and selection of the drugs and other materials used in its make-up, and would guard most religiously the utmost precision and regularity in the various methods and steps of its preparation in order to obtain unvarying uniformity and reliability of effects. And it is perfectly patent that the wishes of the profession in this regard are much more liable to be fulfilled under the above conditions than when the desired remedy is prepared under the vacillating conditions of all grades of drugs, degrees of skill, etc., to be found in drug stores.

It is a fact familiar to all of us that the most ordinary prescription which we may compose, when filled at different pharmacies, or even at the same pharmacy at different times, may appear so different as to call forth the complaints of our patient, who never believes the repeated bottle is quite as good as the first one; indeed, he frequently thinks it is a different preparation, and is firmly convinced that the druggist has made a mistake and given him the wrong medicine.

We all know how essential it is to have certain prescriptions prepared in a certain way, even aside from the manner in which the general rules of pharmacy would govern their preparation.

We believe, therefore, that the substitution or proffer by the druggist of a home-made preparation of this kind, for the one which is prescribed, should be deprecated by the profession as emphatically as is its cousin, the substitution of one drug for another.

High-minded pharmacists have a code of honor toward physicians and patrons as well as reputable physicians. They are trusted both as to the quality and quantity, and to the correct preparation and fair price of articles they dispense, and they do not betray the confidence reposed. Those who do are not honorable, and sooner or later they generally learn to their sorrow, in failure to reap the highest financial reward from professional and public patronage, that honesty is the best policy, as it is the proper principle of all business men.

When they are not found out and discountenanced by profession and public it is gratifying to know that the moral and legal sin of substitution is punishable through the courts and the eyes of our proprietary friends are on them, and that they will, in one way or another, be overtaken and circumscribed in their wrong; for a druggist who will counterfeit a reputable preparatory medicine, gotten up with pains by a fellow-pharmacist, and thus clandestinely rob his brother of his just reward, would in the same way rob both physician and his patient by substitution in prescriptions.

The unauthorized renewal of a physician's prescription is likewise oftentimes an equally reprehensible and dishonorable practice save in very exceptional instances.

Eroto-Psychopathy.—Under the caption, "Pathology of Scandals," the *New York Medical Record*, of November 16th ult., editorially calls attention to some of the features of erotic and nympho maniacal disease, which have made and will continue to make much trouble the world over.

The subject is one well deserving the attention of the general practitioner; and it is one also which should be better understood in general, for the welfare of society and for the just estimate of popular and worthy men in the professions of Theology and Medicine.

Alienists know well enough by observation how closely allied are morbid religious exaltation and certain erotic

emotional states, and how easy the transition from the one to the other; and the experienced neurologist who has seen a large number of cases of insanity of the emotional religious type, and seen them pass from love of the Saviour or Blessed Virgin to an ecstatic love of less exalted human beings, and from the corridors of an insane asylum has transferred his experience to the less extreme but no less real examples which fall under his special observation outside of an asylum for the insane, of erotic neuropathic disturbance and religious and æsthetic ecstasy, knows how to appreciate all that the *Record* has said and more. Religious and erotic hysteria, hystero-eroto-mania, hystero-catalepsy, ecstasy, religious and emotional and emotionally erotic, as they so often are in certain neuropathic women, should be better understood and appreciated by both profession and public, for the protection and welfare of the two professions, Medicine and Theology, liable to suffer from them. Physicians suffer less than the ministers of the Gospel, because they know more about hystero-erotics and eroto-maniacs and better how to avoid them.

Race and Insanity.—Dr. H. M. Bannister (*American Journal of Insanity*, 1888) concludes:

That in the white race the depressive types of mental disease are most frequent in the Germanic and Scandinavian peoples, and least so in the Celts; the reverse of this appears to be the case as to the exalted or maniacal types. That paretic dementia is not a disorder to which any race is immune, but one that depends upon causes independent of racial or national peculiarities. That the well-known fact that insanity is much more common amongst the foreign born than amongst natives in this country, is not to any great extent explainable by the shipment of the defective classes of Europe to America. The "cranks" and epileptics and other neurotic individuals do not appear to be represented, in due proportion even, amongst the foreigners in our asylums. The cause of the excess of foreign born insane in this country is, it seems probable, to be looked for mainly in the fact that, supposing the immigration to include only *its proportion of persons below the average of mental strength and flexibility*, the change of scene and associations, the difficulties of beginning life among them, disappointments, homesickness, and all other accidents and trials that befall the newcomers, together contributing to break down mentally a vast number who under other circumstances would have escaped, and largely contribute to the mass of insanity in this country.

The last conclusion, as will be obvious from the italicized clause, is self-contradictory. Dr. Bannister does not

agree either with results of Kiernan, on which Dr. Spitzka's paper was based, nor with those of Clevenger (*Journal of Nervous and Mental Disease*, 1884); nor with those of Kiernan (*Neurological Review*, 1886); nor with the recent testimony of Dr. C. S. Hoyt; and the discrepancy is explained by the fact that episodical attacks of furor in larvated epileptics and in concealed paranoiacs, and the recurrent attacks of insanity in periodical lunatics are regarded as cases of acute mania, since such a procedure swells the recovery rate. * * *

The Vicarious Function of the Hemispheres, hinted at by Wigan in 1844, in his treatise on "The Duality of the Mind," and maintained by ourself many years ago (*vide American Journal of Insanity*, October, 1875), and confirmed by so many facts of clinical observation not otherwise explicable, has lately received new confirmation in some recent experiments in Goltz's Strasburg laboratory. This distinguished physiologist, among other experiments during the past year, gradually destroyed, by the washing out and cutting process combined, the entire left hemisphere of a dog, with the result of but slightly inconveniencing the animal in mental or motor function. Indeed its voluntary movements seemed to be not impaired in kind at all, though they were less powerful after than before the vivisection.

The right paw, though weaker in its movements than the left, would remove the earth and straw that covered his food, if the left paw was secured, showing the dog's preferable reliance upon the uninterrupted channels of motor conduction. A tendency to rotate towards the affected side appeared. There would seem to be no other explanation of these phenomena but that of recovering physiological function.

Objects of Considerable Weight Suspended by Adhesion to the Finger Tips.—The secular papers of December last contained an account of a sixteen-year-old boy who could cause objects of considerable weight to adhere to his finger tips by simple contact of either hand.

The boy's name is given as Louis, the son of Philip Bamburger.

The tips of the fingers, which are more than usually fleshy, are capable of the greatest feats. He touched his fingers against a glass tube ¾

inch in diameter, and they stuck with such force that as he pulled them away from it, one after another, there was a click. The end of the tube thus raised was freighted with a plaster of paris block, and on this were gradually piled leaden weights until 5½ pounds were reached. This he was able to raise with the open palms.

The young man loses hold when the objects become very damp by perspiration or otherwise, and can only hold very smooth bodies.

Prof. William Simon, of the Maryland College of Pharmacy, has developed whatever strength and remarkable powers the young man displays from the very smallest beginnings. At present he is engaged in experimenting with him in a scientific manner in order to present the case to the public in a technical journal.

Hydrophobic Fright, Neuropsychosis, or False Hydrophobia.—On December 19th a boy fifteen years old died in Bellevue Hospital, New York, a victim to the fear of hydrophobia. He was bitten on the hand about two weeks before. The day before he died, while preparing to go to work, he suddenly began to stare wildly about him, to shout and gesticulate, and tried to throw himself from a window but was prevented by the family and two policemen, who bound and handcuffed him, and removed him to Bellevue Hospital. Throughout the day he continued violent and repeatedly attempted to injure himself by throwing himself on the floor.

Dr. Douglass, of the hospital, saw no symptom of genuine hydrophobia in the boy, but only dread of hydrophobia and unsettled reason, caused chiefly by reading an account of the death of another boy and the apprehension from his own injury.

The Office-Seeking Friend of the Profession.—A secular newspaper, discussing "the public-spirited man," speaks of him thus:

A public-spirited man, regarded in the cold light of to-day, is seen to be inordinately vain. He is no less discovered to be a restless, egotistical fellow, officious and fond of notoriety, who mixes himself with the affairs of everybody in particular and of the public in general, on the pretext of devotion to the public good. * * * Our fathers hailed his kind as patriots. * * * Men of this sort * * * are generally to be avoided as on the whole too well aware of the value of their services and far too willing to take command of the whole body politic.

We have seen this individual at the Medical Conventions. Have not you seen him, dear reader? He is often there, and gets there and is glorified, and sometimes damned after his glorification.

Dr. Goodell's Timely Article on the abuse of uterine treatment through mistaken diagnosis, is placed in close proximity to our original department. It would not be out of place as an original article in this journal, as it is in harmony with sound neurological teaching.

It is a most appropriate, manly and timely recantation of the errors of gynecology, in harmony with neurological teaching. We cheerfully place it before our readers, for the good it may do both gynecology and woman. The world moves, and gynecology moves with it, and the day is dawning when woman is to be emancipated from the thraldom and bloody tyranny of the speculum. Not that the speculum shall be banished, but that its reign shall be more just to woman maimed in her neural mechanism.

Cannot Do It, Gentlemen.—The following letter refers to an article puffing a certain proprietary preparation:

C. H. HUGHES, M. D., NEW YORK, January 16th, 1890.
Ed. ALIENIST AND NEUROLOGIST, St. Louis, Mo.

DEAR DOCTOR: As we are closing up our advertising contracts for 1890, we should like to have your reply to ours of 7th inst., otherwise must exclude your journal from our list.

With best regards, we remain, Yours truly, * * *

We can't do it, gentlemen. A mercenary motive is not the purpose of our existence, and we cannot be thus subsidized. We will give the matter space in our advertising pages. If your ad. disappears from our journal our readers will know why, for we shall tell them.

The Subscription Agencies.—About this time of year these make us much trouble by sending in names of our regular subscribers and deducting commissions on their checks.

Now this is to notify these firms, as we have repeatedly done each and all of the old ones doing business, that no commissions are allowed on our subscribers. It is useless for agencies to demand these deductions, and we would regard it as a favor if all regular subscribers would deal directly with this journal.

Psychoses after Gynecological Operations.—Dr. Werth (*Muenchen Med. Woch.*, June 5, 1888) has noticed that two per cent. of his three hundred cases operated on were attacked by melancholia as a consequence of the operations, which were in two cases hysterectomy; in two oöphorectomy; in two bladder irrigation. Three had

reached the menopause. Sanger had observed several similar instances, and so had Ahlfeld, from the use of the speculum. K.

A New Journal, "Le Moniteur Medicale," to be conducted by M. Germain Sèe, in Paris, is announced. The name of the editor is a guarantee of merit and success.

Wanted.—Back numbers of the ALIENIST AND NEUROLOGIST. The subscription price will be paid for April number, of '89; April, of '84; and January, of '81.

Prof. Westphal, of Berlin, is reported to have fallen a victim to mental disease. We hope this may prove to be an error.

CORRESPONDENCE.

Letter from Judge Sherwood, of the Supreme Court. An inquiry concerning gunshot wound of the brain, throat cut, and hemorrhage.

SUPREME COURT OF MISSOURI,
JEFFERSON CITY, Dec. 1st, 1889.

C. H. HUGHES, M. D.

DEAR SIR:—I have been receiving your valuable quarterly, the ALIENIST, and have been able to appreciate some of the articles, and all have been interesting; so it occurred to me to venture the liberty of calling your attention to a case reported in 95 Mo., 623, State *vs.* Jackson, and asking that after reading certain portions of that case, to wit: pages 637, 638, 659 and 660, you will be kind enough in the next issue of your journal to answer a question in medical jurisprudence, which the facts in that case suggest, and which a physician or surgeon is alone competent to answer, and that is:

If a man be shot through the head, and his throat immediately cut, whether the blood will gush as if his throat were severely cut when in full life? You will observe that Dr. Martin's (page 660) theory of the effects of such a gunshot wound in the head, are so and so, and those of Dr. Thompson, of this place (page 638), just the

opposite. The defendant has been twice tried and convicted of murder, and the judgment has been as often reversed. The last trial developed the same facts; but it was shown in addition that there were no gunshot wounds in the body, something undeveloped on the first trial. Hoping you may have leisure to give this point attention, I am, very

Respectfully,

T. A. Sherwood.

A penetrating bullet wound was found in the parietal bone above the left eye, entering the brain obliquely and passing out at inner canthus of the left eye. Course of ball was downwards and inwards.

The throat was cut and the windpipe, jugular vein and carotid artery severed.

One medical expert testified that if a man were first shot through the brain the effect would be to retard the flow of blood caused by severing the jugular vein and carotid artery.

We should be glad to receive and publish opinions in in our next on the question propounded, which is a novel one in medical jurisprudence.

The bullet wound of the fore brain probably caused temporary fainting and unconsciousness and of course suspended heart action, during which time the throat was cut and the bleeding not profuse at first.—Ed.

IN MEMORIAM.

Dr. Charles H. Nichols.—This accomplished and distinguished medical head of Bloomingdale Asylum died December 16th, soon after his return from Europe. Dr. Nichols was a native of Maine, born in 1820, and an alumnus of the University of Pennsylvania in 1843. He was Superintendent of the Government Hospital for the Insane, at Washington, for twenty years, and ten years or more Superintendent of the Bloomingdale Asylum. He was a prominent expert witness in the celebrated Mary Harris trial and in the trial of Guiteau, and was once President of the Association of Superintendents of American Hospitals for the Insane. He was a conscientious and accomplished alienist and held the esteem and confidence of the profession and public throughout his professional career.

Dr. Herght, Director of the Asylum for the Insane, at Illenau, Grand Duchy of Baden, died December 28, 1889, at the age of eighty-three years. The institution at Illlenau, one of the foremost of its kind in Germany, was founded in 1842.

Reviews, Book Notices, &c.

Was Harvey Insane?—This is the caption under which Dr. James T. Steves, a psychological expert of St. Johns, New Brunswick, and well known to many of the readers of the Alienist, discusses the question of insanity.

In a previous discussion of the subject, the editor of the *Globe* had asked this quite natural question, and two other questions of interest in the popular as well as professional mind, namely: "What is Insanity? Are There Many Insane People About Who are not in Asylums?"

Dr. Steves, after a short introductory, gives a brief history of the murderer and discusses the subject as follows, and we commend the doctor's criticism of English law in what follows, especially to lawyers and jurists who may read the Alienist and Neurologist:

The Case of Wm. H. Harvey.—Is he Insane?—"In March last Harvey was arrested for embezzling funds belonging to his employer, and was bailed for the night to appear the next day or in a day or two. He did not appear, and the police who went after him, on searching his house found his wife and two daughters in separate rooms, all dead from bullet wounds. The only remaining member of his family, a young son, resided in Toronto, some miles from Guelph, where Harvey himself lived. Harvey went to Toronto armed with his revolver and cartridges. Previous to starting he telegraphed to his son to meet him at a specified point, but by a fortuitous circumstance the son, not knowing what had occurred, started for home before the telegram reached him, and by the use of the telegraph Harvey was met in Toronto by an officer of the law instead of his son, and of course was arrested. When arrested he was coolly striding about with his hands in his pockets smoking a cigar. The presumption is perhaps a fair one, that he intended to kill his son and probably himself also, and thus remove from life all who would suffer disgrace by his crime. The jury found him guilty of willful murder, despite the efforts of the defense to show that he was insane. It is added that Mrs. Harvey was a pleasing woman, and that the two girls, aged about thirteen and eleven respectively, were lovely children.

"We may now, and we would do this with becoming diffidence, address ourselves to the great questions before us: 'Was Harvey insane?' and 'What is insanity?' Before proceeding to attempt an answer to either it might help us in our view of the question to ask the opposite one: Is Harvey sane? Is such an almost motiveless, atrocious and unnatural act the manifestation of a sound brain and mind? It has always appeared to me in the discussions and decisions upon the question of insanity, that another subject, so closely allied to it that they are indeed inseparable in criminal cases, has so influenced and warped the minds of men, that the first is not always decided upon its merits. I mean the question of the

after disposition of these border cases. The proposition forces itself on the minds of many people that they are not far wrong in deciding against the plea of insanity. Even presuming the culprit (?) has a possible obscure partial insanity, he deserves to be put to death, and should we not make sure that he is deprived of the possible chance of slaying other persons? I fear and I believe that the accused in some instances, instead of getting the benefit of the doubt, gets the converse of the benefit. Resuming the new question introduced, Is Harvey sane? I would ask, Can such an act as his be harmonized with the acts of persons possessing sound minds? or is his act consonant with the work of a criminal? The statement may be safely ventured that Harvey's act is out of harmony with the sound mind even of a savage; and it may be nearly as safely said that it differs most essentially from that of criminals. Ordinary criminals perform their deeds of *darkness* for revenge or for booty of some sort. The question then is, if Harvey's act is not that of a person of sound mind, and it is not the act of a criminal, what shall we denominate the perpetrator? I do not know of any better term than that of a lunatic or insane person.

"In the account which we have of the Harvey case it is said that his friends are making a strong effort to show that for a long time he has been insane. What kind of proof they have adduced we are not informed, but one would be almost certain in predicting that the above act of Harvey was not the first indication of mental aberration which could be discovered in his history. I make this venture from a fact that I have noticed hundreds of times when receiving patients in the asylum. I asked the question, When did this patient become insane? Then follows the answer, at a given time. The onset may have been gradual or it may have been very sudden. But I inquire further, Have you not observed occasional symptoms before the time you named, or have you not seen any change in general conduct previously? The answer very frequently is, Yes, we have, and members of the family have discussed these strange acts, but did not attach much importance to them till forced to do so. If, therefore, well-defined premonitory indications of mental defect were proven in Harvey's history, or if he had relations insane or showing neurotic defect, it would fortify the opinion that he was insane. The overt acts of persons having mental defects or disease—usually harmless and possessing fairly good inhibitory power—are often suggested by chance circumstances or peculiar incidents.

"For instance, some years ago, previous to my residence at the asylum, a patient was being conducted by an attendant from the stable to the asylum building; the parties had had some difference about a matter, though the patient was apparently willingly and quietly *following* the attendant to the house at the latter's request. On the way they passed the wood-pile, an ax was sticking in a log near the pathway. Seeing this it flashed upon the patient's mind at once, Here is my chance to give this man his quietus. Acting upon this sudden emotion of revenge perhaps, and before his usual measure of inhibitory power was brought into action, he seized the weapon and inflicted a fatal blow. In this case we may observe one of the grand distinctions between a sane and an insane person —the presence or the absence of healthy control of the will power. Some

sane persons may contemplate homicides, suicides and other things forbidden, but they have, or should have, inhibition coming in between the emotion and the carrying out of the act. The insane person, with his restraining power of the will greatly weakened or lost by 'duress of disease,' cannot help it, and is carried on to the commission of overt or abnormal acts.

"We may as well make a few remarks just here on the minor question 'Are there many insane people about who are not in asylums?' To this interrogation we can boldly say, Yes, there are. Consult the Dominion, census and you will learn that there are within the borders of the Province of New Brunswick upward of 800 persons of unsound mind; and if you examine the annual reports of the Provincial Lunatic Asylum, you will discover that the largest number of insane in that institution at any one time during its history, was 457. And if you examine further you will find that of those discharged and removed by friends, fully one-third are not wholly recovered. And I may add that if you carry your investigation still further, you may be assured that the census and asylum reports of all the States and Provinces on this continent, show the same condition of affairs. That there are persons about who are in a minor degree insane, or mentally faulty, who have never been in asylums and who are liable to sudden insane acts, no person who reads the newspapers will question for more than a moment. Let anyone take cognizance of this fact, I will venture the opinion that he will not read his daily for a week without having to take notice of one or more horrors committed by mentally alienated suicides and homicides. If this opinion be not literally true for every week's observation, he will at least find that the number of such cases is far above what he had anticipated.

"Coming now to the grand question, 'What is insanity?' we may well hesitate upon the threshold. We can scarcely formulate a definition in few words that does not embrace too much or too little. Alienist physicians freely admit this, but we may describe the various symptoms and manifestations that characterize the malady. It may be intimated that in the use of the word 'insanity,' we contemplate disease or defect of the brain accompanied with faulty mental manifestation. Perhaps the most distinctive feature of insanity is undevelopment or dissolution—the opposite of evolution—the taking down and to pieces—a passing from the higher to the lower, and assuredly the distingishing and universal element in insanity is the impairment of will power. For all cases of insanity there is more or less pronounced loss of self-control—or of inhibitory power—and, indeed, this is really what insanity is. The lower mental functions dominate because of the presence of neurotic defect. Those functions, which in health are under voluntary control, assume over-activity, and find expression in the varied forms of insanity, with delusions, hallucinations, illusions, and maybe acts of violence. Will is the link between feeling and action, and when it is impaired it ceases to be available to prevent the transmutation of the energy of feeling into the energy of motion. And here we have an explanation of the utter inadequacy of the motives that constantly lead to crimes of the insane. There is no check action, there is an abbreviation of that pause that gives time for foresight

and reflection. 'Must give us pause,' says Hamlet, on the brink of suicide.

"In some instances, and perhaps in all, a certain amount of volitional power is retained in insane persons, and is effectual to a limited extent over their morbid mental manifestations. It is true that insane persons at times show a remarkable fixity of purpose, and pursue a course of action with a good deal of tenacity, but such conduct is morbid volition, self-will or obstinacy, and only simulates healthy volitional power and control.

"I cannot, by any process of thinking or idealization, induce my consciousness to evolve the conviction that Harvey acted under any other than an alien disposition, or that his normal volition was not assuredly paralyzed or in abeyance.

"Before closing what I desire to say on this subject, I wish to add a few words in relation to the law in regard to insanity as an excuse for crime, and to offer a word to show how far it harmonizes with the conclusions of medical science. For nearly half a century, excepting some recent findings, the judgments delivered in cases in which the plea of insanity has been set up, have been determined by the answers returned by the judges to the questions put to them by the House of Lords in the McNaghton case. The substance of the answers is: 'That to establish a defense on the ground of insanity it must be clearly proved that at the time of committing the act the accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong.'

"Under this ruling a large number of insane persons have been judicially put to death as criminals, and a far larger number have served, and others are still serving, long periods in penal institutions, notwithstanding that the law declares that an act done by an insane person is not a crime, and the person therefore cannot be tried, sentenced or punished for such act. Let the model interpreters of insanity, according to Brodie and others, *i. e.*, 'persons of common sense, conversant with the world and having a practical knowledge of mankind'—let these enter the wards of an insane hospital, and even they will not find much difficulty in being convinced that one-half of the patients have a fair conception of the nature and quality of acts, and whether they are right or wrong; nor will any doubt rest upon their minds as to the fact that such persons are of unsound mind. According to the foregoing ruling only raving maniacs, idiots, and those having a low form of dementia, would be exempt from punishment due to crimes of the darkest sort. Such a test as that of the House of Lords is faulty in that it ignores states of the emotions and will, thus excluding the larger half of insane persons. It is pleasing to be able to say that this great question has not been allowed to remain fixed and undisturbed over so long a period as that stated, without challenge or revolt. Long ago Judge Tracy held that except a criminal was irresponsible as a wild beast he should suffer punishment. Lord Mansfield held that a knowledge of right and wrong was the test. Lord Denman said that legal responsibility should depend on the presence or absence of insane delusion. Lord Moncrief laid it down that a man's habits and

repute as to sanity among his fellowmen who know him well, should determine his legal responsibility for any crime committed. Finally we have the new and rational criminal code of Mr. Justice Stephen (Sir James), which proposes to make the man's power of controlling his actions the test. He says: 'The proposition which I have to maintain and explain is, that if it is not it ought to be the law of England, that no act is a crime if the person who does it is at the time defective by mental power, or by disease affecting his mind from controlling his own conduct, unless the absence of the power to control has been produced by his own default.'"

THE AMERICAN JOURNAL OF PSYCHOLOGY.

The January number of the *American Journal of Psychology*, G. Stanley Hall, of Clark University, Worcester, Massachusetts, editor, is now entering upon its third year, with its plan reconstructed and its size and scope enlarged. The editor has made arrangements to secure the prompt publication of digests by competent hands, of all important books and periodical literature in the various departments of psychology in the chief countries of Europe. The current January number contains original articles on:

The Insanity of Doubt.

Experiments on the Effects of Fatigue on Voluntary Muscle-action.

Four Laboratory Studies in the Fields of Experimental Psychology.

An Empirical Study of Lying.

The first chapter of a History of the Doctrine of Reflex Action.

A section devoted to the recent literature of neurology.

Another devoted to the recent literature of heredity and sex.

Another to the recent literature of criminology.

Another to experimental psychology.

A department of anthropological psychology will be added in the April number, which will also probably contain an extended study of the brain and sense organs of the well-known blind deaf-mute, Laura Bridgman.

Other subjects which have been represented in the past and will be in the future, are: Education on the psychological side; Hypnotism and its therapeutic uses; Neuroses and the border-line phenomena of mental alienation and nervous disease, with special reference to work in or bearing on experimental psychology.

The *Journal* is intended to serve the following classes:

I. Those interested in the study of insanity in all its scientific bearings.

II. Those interested in the study of education, in both its philosophical and scientific aspects.

III. Those engaged in the teaching and study of any departments of philosophy, or biologists and physiologists interested in the phenomena of instinct, localization of brain-functions, the functions of the senses and nerves.

IV. Anthropologists who are concerned with the primitive manifestation of psychological laws.

V. Others interested in the great progress recently made in so many directions in applying more exact methods to the study of the problems of human feeling, will and thought.

ANNA'S ASYLUM. Plot to Prostitute it to Political Purposes. Foraker's Fate Fifer's. *Cairo Argus-Journal*, 16th November, 1889.

We are in receipt of a circular bearing the above caption, and have only to say, if the facts set forth are true, and any other motive than a desire to secure professional proficiency actuates the present Governor of Illinois, in regard to any of its eleemosynary institutions, to a sufficient extent to inspire removals from office of the heads of the State asylums of our sister State, they are unworthy the Chief Executive of a great free State, and violative of those sacred rights of the maimed in body and mind, that should be the chief care of all in authority.

Any aspiring politician of either of the great parties of this country, who forgets the rights of the helpless wards of the Commonwealth and his solemn duties towards them, ought to fail of his unhallowed ambition. The precincts of every State hospital should be sacred from the polluting touch of politics. Over it should float a flag of truce and contending parties should protect it from the perils of party strife, that peace and security may be assured to the afflicted within its walls.

INJURIES AND DISEASES OF THE NERVES AND THEIR SURGICAL TREATMENT. By Anthony A. Bowlby, F. R. C. S. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia.

This book comes to us with the compliments of the publishers, and is for sale in St. Louis by S. M. Simpson & Co.

The author of this valuable book, which practitioners cannot well do without, is Anthony A. Bowlby, F. R. C. S., Surgical Registrar and Demonstrator of Practical Surgery and Surgical Pathology at St. Bartholomew's Hospital, London, and the material and conclusions of the author are drawn from nine years' practical observation at St. Bartholomew's. The book is well written, copiously illustrated in ink and colors, and the text is plain and smoothly written.

The trophic power of the nerves is made quite plain in the records and descriptions, and beautifully shown in some of the cuts. We cordially commend the book as worthy of a prominent and valuable place in the literature of neurology, and, if we may be allowed a new expression, as worthy of no insignificant place in *neuriatry*.

A MIND LOST.—The *Republic* of St. Louis, one of the best of America's metropolitan dailies, often shows its appreciation of matters psychological and psychiatric in its selections, and the following remarks, taken from its editorial department will interest the psychological as well as general reader. Mental influence is never lost, mental impression never dies, the ψχε of our being is eternal in its impressions for the good or ill of the world:

"No event in the life of men famous in English literature is sadder than the imbecility of John Ruskin. Swift became an imbecile. No one

seeing how bitter he was, how keen his sight was for all the foul and base in human nature, can wonder at it. But Ruskin's serene intellect seemed designed to acquire here strength for an immortality of ever-increasing strength. It cannot be that such an intellect is dead. There must be more in heaven and earth than is dreamed of in the philosophy of the physicians who say 'that his mind is totally gone.'

"Can such a mind be lost? There has seldom been an intellect with clearer vision for truth and beauty and goodness. He loved them, sought them and found them everywhere—in men's hearts, in the shadows of the clouds and stars, in still water, in the long, graceful sweep of the linden bough, in the gnarled twistings of the British oak, in the peaceful fields and in the rugged masses of mountains piled up in strength and beauty by the volcanic forces of nature working order out of their own chaos. No mind has seen more of small and great things than his. He saw the formation of the tree in its leaf; he saw the harmony of leaf and flower; he saw the simplicity of the dew drop in the complexity of the world. And he learned to be worthy of the divine inspiration of truth which enables the recipient to impart it as he has received it, in the grandeur and strength of its simplicity.

"It is false that such a mind is lost. It is not lost in its relations to other minds, for its influence will be felt from generation to generation by thousands who never opened a book of Ruskin's; who, if they know of him at all, think of him as an 'art critic,' when he was infinitely more, in being a lover and pupil of God's own work—one of those seers who were fabled of old times to have a power of sight strong enough to pierce through stone.

"It is equally inconceivable that such a mind can be lost to the individual—to Ruskin himself. It belongs to him. It is his. It will not be taken from him. He has it still. Some blood-vessel has burst in the over-taxed brain. The aspiring mind was beginning to torture the weak body past bearing. The bursting blood-vessel is a gain, not a loss. He has done his work and he is resting. The brain and its fragile vessels will pass. The mind of John Ruskin remains and it will remain forever in a universe where no force is lost and no good destoyed."

Hypnotism.—Hypnotism continues to receive merited attention. The recent book of Kraft-Ebing is before us. Besides the contributions which have appeared in our pages, the subject has been ably reviewed recently by Dr. G. J. Preston, Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, Baltimore; and in an interesting paper before us, by Clark Bell, Esq., President of the Medico-Legal Society of New York, in which, after saying that the medical profession in America do not give this subject the attention its importance deserves, excepting the experiments of Hammond and the late Dr. George M. Beard, the writer takes up especially the medico-legal aspects of the subject, after the manner of Bjornstrom, as follows:

"Hypnotism comes in contact with the law at more than one point, and many and intricate are the medico-legal questions which it has already raised. The most important of the questions are:

"1. Can the hypnotized be physically or mentally injured by hypnotism?

"2. Can the hypnotized fall victims to crime?

"3. Can the hypnotized be used in the service of crime as a ready tool without a will?

"4. Are the hypnotized responsible?

"5. Should hypnotism be prohibited?"

Much of what seems a mystery of motive of action, so pertinent to legal and criminal responsibility, must, the author thinks, in some cases be involved in this inquiry. The recent startling and, in many respects, almost incomprehensible case, in which the Hon. Ray Hamilton was so strangely affected, may be shown to be due to the well-defined phenomena of hypnotism.

The author gives with approval the opinion of Dr. Edward Payson Thwing, that it was doubtful if there was any person who could not be hypnotized, who had sufficient will power to concentrate the thoughts upon a subject, to remain mentally passive, and who would not mentally oppose or combat the influence of the hypnotizer, or who would mentally yield to it. That after long and repeated trials, under favorable conditions, with patient effort, everyone would ultimately succumb; and concludes:

"It is a subject which should not longer be neglected or ignored, and to which the earnest attention of advanced students of medical research is earnestly suggested, to meet the popular demand for light upon the science, and researches regarding its phenomena is now the duty of such of our medical men as are competent to grapple with the subject.

THE KANSAS MEDICAL JOURNAL is a monthly medical of merit, published at Topeka, in our neighboring Western State, by an editorial committee, consisting of W. L. Schenck, M. D., Osage City, Kas.; J. E. Minney, M. D., Topeka, Kas.; S. G. Stewart, M. D., Topeka, Kas.

Besides an interesting number of original papers the editorial department contains an editorial on insane asylums, which indicates that the writer is advancing with the advanced men of the age in psychiatric observation and neurological thought.

We make room here for a brief quotation which meets with our approval, because it aims at improving the welfare of the insane and promoting the cure of insanity:

"At the last reports to which we have access the asylum at Independence, Iowa, had 649 insane inmates and four medical attendants; the asylum at St. Peter, Minn., 874 inmates and three physicians; Stockton Cal., 1436 inmates and three physicians; Topeka, Kas., 578 (now nearly 800) inmates and three physicians. While a few make somewhat better provision, these are the average. A medical staff is provided that is hardly equal to the various other diseases with which the insane may be afflicted.

* * * * * * *

"It is poor economy for the State to stint where it should be liberal. If the pathological conditions upon which insanity depends are removed,

the State is not only relieved of the care and cost of the insane invalid, but he at once becomes a productive member of the body politic. On the other hand, if through lack of skillful treatment his disease is, or becomes incurable, the State is not only deprived of his labor, but is burdened with his continued support. What opportunity has a medical staff of three physicians, one of whom at least has a Herculean work outside of his care for the diseased and crazy hundreds about him, each one of whom should be studied as a whole and, if possible, restored to health through the agency of mental and moral medicine continually applied, through properly regulated and adopted hygienic methods, and by drugs and, perchance, the knife."

THE AMERICAN REVIEW OF ANTHROPOLOGY.—(Prospectus.) The work of this new monthly *Review* will be in the direction of an investigation of man himself, a discussion of his place in the scheme of nature, an examination into the underlying laws of his mental growth, and a description of the variety of the species, their characteristics, their locations and their relationships. These are the topics which will be discussed in the sections of Anthropology, Ethnology and Ethnography. Edward C. Mann, M. D., F. S. S., President New York Academy of Anthropology, editor, 128 Park Place, Brooklyn, N. Y.

A CASE OF SPORADIC CRETINISM, WITH REMARKS. By F. Norton Manning, M. D., Inspector-General of the Insane, N. S. W., and Lecturer on Psychological Medicine at the University of Sidney. This, with the accompanying illustrations, makes an exceedingly interesting paper to psycho-physiologists and neuropathologists. The subject is well presented and in agreeable style.

THE OPHTHALMIC REVIEW begins its new volume with an American editor, Dr. Edward Jackson, of Philadelphia, who succeeds Dr. James Anderson, of London. It will hereafter contain articles from American as well as English ophthalmic surgeons, with notices of all ophthalmological papers published here or abroad, and full reviews of the more important of them.

INSANITY IN AUSTRALIAN ABORIGINES, with a Brief Analysis of Thirty-two Cases. By F. Norton Manning, M. D., Inspector-General of the Insane in New South Wales, and Lecturer on Psychological Medicine in the University of Sydney. This paper, like the preceding one, by the same author, will interest all alienists and neurologists.

A HAND-BOOK OF DERMATOLOGY, for the use of students. By A. H. Ohmann-Dumesnil, A. M., M. D., Professor of Dermatology, St. Louis College of Physicians and Surgeons; Consulting Dermatologist to the St. Louis City Hospital; Physician for Cutaneous Diseases, Alexian Brothers Hospital, etc.; Editor St. Louis *Medical and Surgical Journal.*

Concussion of the Spine in its Medico-Legal Aspects. Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, held at Newport, June 25, 1889. By Henry Hollingsworth Smith, M. D., L. L. D., of Philadelphia.

The Medico-Legal Aspect of Concussion of the Spine. Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June 25, 1889. By Herbert Judd, M. D., of Galesburg, Ill.

The Constitutional Treatment of Caries and Necrosis. By Hal C. Wyman, M. S., M. D., Professor of Principles of Surgery and Operative Surgery, in the Michigan College of Medicine and Surgery, Detroit, Michigan.

Insanity and Allied Affections. By A. L. Hodgdon, M. D., Member of the Medical and Chirurgical Faculty of Maryland, Fellow of the Virginia State Medical Society, and Member of the Clinical Society of Baltimore.

Valedictory Address delivered to the graduates in Medicine of McGill University, April 1, 1889. By Wesley Mills, M. A., M. D., L. R. C. P., Lond., Professor of Physiology, McGill University, Montreal.

On the Alterations of the Myocardium, Following Section of the Extra-Cardiac Nerves. By G. Fantoni. Translated from "Il Pisani," by Dr. Joseph Workman, with notes by Dr. Wesley Mills.

Higher Medical Education, and How to Secure it. The Annual Address before the Alumni Association of the University of Maryland. By Richard H. Lewis, M. D., of Raleigh, N. C.

General Index to Vols. I. to XLV. of the *American Journal of Insanity*. By P. M. Wise, M. D., Superintendent of the State Asylum for Insane, Willard, N. Y.

Physiological and Pathological Reversion. By T. Wesley Mills, M. A., M., D., L. R. C. P., Lond., Professor of Physiology, McGill University, Montreal.

The Family System in Practice. A Report of the Condition of the "Boarded-out" Insane in Massachusetts. By Henry R. Stedman, M. D.

Erythroxylon Coca, its Value as a Medicament. By Marc Laffont, M. D., Paris, Professor of Physiology at the Faculty of Lille, France.

Melancholia in a Woman Aged about Sixty Five Years.—Recovery Under Treatment. By A. L. Hodgdon, M. D., of Baltimore.

Essentials of Pathology and Morbid Anatomy. By C. E. Armand Semple, B. A., M. B. Cantab.; L. S. A., M. R. C. P., Lond.

Comparative Psychology. By T. Wesley Mills, M. A., M. D., Professor of Physiology, McGill University, Montreal.

A Case of Insolation in a Four Year Old Child, Followed by Recovery. By A. L. Hodgdon, M. D., of Baltimore.

Extracts From the Autobiography of a Paranoiac. By Frederick Peterson, M. D., New York.

The Johns Hopkins Hospital Reports, Baltimore. Volume II., No. 1.

Laws Regulating the Practice of Medicine in North Carolina.

Sulpho-Calcine, its Medical Properties and Uses.

THE

Alienist and Neurologist.

VOL. XI. ST. LOUIS, APRIL, 1890. NO. 2.

ORIGINAL CONTRIBUTIONS.

A Rare Case of Partial Spinal Amnesia, from Rheumatic Neuropathy.*

By Professor SALEMI PACE, Palermo, Italy.

THIS is perhaps the first time that *partial spinal amnesia* has been spoken of, though it is not the first time that a description has been given of "the loss of the motions necessary for maintaining an individual in the erect posture, and enabling him to walk, whilst there was no loss of sensibility, muscular power, and the ability to move the lower limbs in all directions, when the patient was lying in bed or was sitting."

We have, therefore, in this morbid form, a rather singular paraplegia, of which medical literature has, up to the present time, and but recently, described only, so far as I know, eleven cases. I now add a twelfth, and as I proceed I shall legitimize the title of *partial spinal amnesia*, which I have given to my case; and this is a designation which appears to me well fitted to those cases which have been described by authors, under different names.

Jaccoud defines this affection as "*an ataxia from defect of automatic co-ordination*," and he adds, "what proves this is the fact that the movements are normal

* Translated from the Italian of *Il Pisani*, for the year 1888, by Dr. Joseph Workman, of Toronto, Canada.

when they are executed in bed, or when sitting; they become ataxic only when the person attempts to stand erect, or to walk.

This particular form of partial motor impotence of the lower limbs, has not failed to attract the attention of that grand French neurologist, Charcot, who has, in conjunction with Richer, treated of it in an Italian journal. The malady, they say, preferentially affects boys and young females, and it seems to be connected with the hysterical diathesis; it comes on suddenly after some strong commotion, or after an injury; the subject of it observes with surprise, generally in the morning, on rising from bed, that he can neither stand erect nor walk; but on returning to bed he moves his limbs quite freely. The prognosis is favourable; the disturbance usually passes away, sometimes slowly and sometimes speedily, but it may return. As to the patho-genesis, these authors do not concur with their colleague Jaccoud, who admits that it is a rare morbid form, specially affecting the hysterical, and he thinks it is attributable *to exaggeration of the reflex excitability of the spinal cord.*

Charcot and Richer, on the contrary, regard it as a simple defect of co-ordination of those movements which are necessary for walking and standing erect. Latterly Charcot has resumed the subject, and he now defines the disease "*a motor inco-ordination in relation to standing and walking.*"

The American, Weir-Mitchell, has also spoken of hysterical persons, who, without any change in sensibility, retain, while in bed, the free use of their lower limbs, but when they try to stand erect, or on their knees, they fall. He designates the affection "*hysterical motor ataxia.*'

Dr. Romeo published, at Rome, in 1885, an important case of a boy, of eleven years, who, after a strong emotion, whilst retaining sensibility and muscular energy of the lower limbs, with the ability, when in bed, to move them in all directions, could not leave the edge of the bed in order to walk or to stand erect. He had the will

to walk, but in trying the first step, he resembled a child just beginning to walk. The talented author saw in this case merely "a dynamic alteration of motor co-ordination;" he gave a favorable prognosis, which was justified by the issue.

Dr. Blocq, of Paris, profiting by observance of two cases of the disease in question, and treasuring the notes and unedited papers of Professor Charcot and others, has published in the present year (1888) a learned and well-considered work, from which we have drawn freely, because it bears so closely on our own case, and contains some valuable ideas.

He describes it as "an affection characterized by astasia and abasia;" two words, as is seen, of new coinage. "We thus," says the learned writer, "designate a morbid state, in which the impossibility of walking and of standing erect contrasts with the integrity of sensibility, of muscular power, and of co-ordination in the other movements of the lower limbs."

This definition implies the idea of paralysis of certain muscular synergies, or systematized movements, in conformity, for example, with what happens in agraphia.

"In pure motor agraphia," says Dr. Blocq, "as is well known, the motor-impotence is due to a paralysis of the ordinary movements, for the subject of it uses his hand quite well in executing common movements and even other systematized ones, as in drawing, in some cases; but he has lost the memory of those particular movements which are required to form writing. Now, just in like manner, in astasia, the motor-impotence does not depend on paralysis of general movements, as the patient executes various movements, and with perfect precision, with the lower limbs; he can even jump and sometimes go on all-fours, but he has lost the memory of those

---

NOTE BY TRANSLATOR.—Is it the fact that the subjects of astasia and abasia have lost memory of the movements for standing erect and walking? They certainly wish to stand and to walk, and until they become convinced of their inability to do so, they will to stand or to walk, but they cannot do so. The will dispatches its telegraphic message to the muscles for standing, but there is a

movements which are necessary for standing erect (astasia), as well as of those for walking (abasia).

After this Dr. Blocq presents a series of analogous cases, and he adds the following terminal remarks:

"The cases collected by us, which form the basis of our work, are only eleven; a small number on which to venture the description of a morbid type; but the majority of these cases present characters so precise as not to permit their assignment to any of the present nosographic divisions. Though among themselves some differences exist, they represent merely the different degrees of change which walking and standing erect may undergo."

I regard it as very useful for what is to follow, briefly to summarize, in their leading characters, the eleven cases detailed by Blocq; I shall afterwards report a twelfth, observed by myself.

Case I. (Charcot).—A woman, pale, blonde, she had suffered injuries in the shoulders and neck; she afterwards presented notable hyperæsthesia from the neck down to the lower extremities of the vertebral column; pressure on these parts provoked pains. When in bed she moved the lower limbs in all directions; but if she descended from the bed, even when assisted, she could neither stand erect nor walk. Hereditary and personal antecedents: rheumatism, gout and neuropathy.

Case II. (Charcot).—A girl of 14 years, who in the morning, after a strong emotion, was unable to rise from bed, though the lower limbs in bed were quite free. When Charcot saw her he found that as she lay in bed, muscular power in the lower limbs, and co-ordination, were

break in the wire, and in consequence the command fails to reach them. These muscles are not those which execute the motions effected by the limbs in the lying or the sitting postures. The longissimi dorsi and their associated muscles maintain the body in the erect position, and so long as they continue powerless, or their nerve conductors are out of gear, standing erect cannot be effected, and when an individual is unable to stand erect, he certainly will also be unable to walk The writer of these lines had a very prolonged and painful opportunity of watching the case of a dear friend, laboring under astasia and abasia, but he never saw any reason for believing that the patient had lost remembrance of the muscular acts required for standing erect or walking. Surely the very attempts made by such persons to stand erect (and such attempts are made by them) prove that they remember the required movements; but remembering these movements and having the power to execute them are two different things. It may be necessary to say something more on this matter, farther on.

unaffected. The patient when held up was dragged along instead of walking. After two months she began to walk, but by bounds on one foot, and next on the other. After fifteen days she walked normally.

There were neither hereditary nor personal antecedents.

Case III. (Blocq).—This was the case of a lad who, in convalescence from a typhoid malady, was one morning unable to get out of bed. Sitting on the edge of his bed, he presented nothing abnormal, as all movements of the lower limbs were possible, and were executed with great precision; muscular vigor was retained, yet he could neither stand nor walk, but merely crept on all-fours. There was nothing abnormal in nutrition, and general and special sensibility were preserved. He recovered in about two months.

Hereditary antecedents, rheumatism.

Case IV. (Romeo).

Case V. (Weir-Mitchell).—These have been previously given.

Antecedents: hereditary, none; personal, neuropathy.

Case VI. (Charcot).—A boy of 15 years, without appreciable cause became hystero-epileptic, after which he suffered the following troubles: When in bed, the lower limbs were in extension, and when he wished to flex them they were very rigid, and walking or standing up was impossible; he was able however to jump. Over most of the body neither strong prickings nor the action of cold were felt; but tickling the soles of the feet was followed by clonic jerks.

General state good. Hereditary antecedents, gout; personal, neuropathy.

Case VII. (Charcot).—A girl of 14 years, without appreciable cause was seized with spinal pain; she afterwards became paraplegic. One day, after an emotion, she started to run, but she came back paralytic; there were hyperæsthesic zones, but no hysterogenous along the spine; in bed the lower limbs were flexed, and she could not voluntarily extend them; when sleeping she extended them; she could in bed raise the limbs, but they fell down again. On trying imposed movements, the limbs submitted to the positions intended, and retained them without force. When set on her feet and held up

by assistants, the limbs remained semi-flexed, and she could not walk.

Hereditary and personal antecedents, neuropathic.

Case VIII. (Erlenmeyer).—A man of 28 years, who, after excesses in work and wine, suffered muscular jerkings, both partial and general. Subsequently, while I was examining the left knee, it was flexed suddenly; some days after, the other knee was likewise seized.

The patient in time got command of his muscles, and he stood up and walked. A new trouble arose, consisting in a convulsive jump which he could not hinder. When the knees were flexed, the whole body was projected, at a bounce, into the air, and a series of irregular leaps succeeded. When he leaned on the arm of an assistant, he did not leap. When in bed the stroke of a hard body on the knee, or on the sole of the foot, produced no movements of any sort; but when standing the knees bent, and he threatened to fall. There was no disturbance of the cutaneous sensibility.

Neither hereditary nor personal antecedents.

Case IX. (Babinski).—A woman of 27 years, who, after various troubles, suffered different nervous disturbances. When sitting she executed every movement ordered. On foot, the pelvis was suddenly bent down on the thighs, and these on the legs. In walking she lowered and raised herself alternately, with rapid, bouncing movements; with this singular progression she went forward a little, then threatened to fall, sought support, found a stretching in the knees and the neck; her physiognomy showed fatigue, and was covered with sweat. She was sometimes able to proceed without inco-ordination, by jumping with both feet, or by prostrating herself and creeping. Muscular strength continued; sensibility was slightly diminished on the left. Two hysterogenous zones, one under the left nipple, the other in the ilica fossa of the same side, caused sensation of aura and induced fits, which consisted in muscular jerks similar to those which occurred when she tried to walk; compression over the ovary arrested the fit.

Hereditary and personal antecedents, neuropathy.

Case X. (Babinski).—A woman of 22 years, who, after various annoyances and a difficult labor, suffered a nervous crisis, consisting in pulsations in the temples, constriction

of the throat, loss of consciousness, rigidity over all the body. On the fifteenth day after the birth she got out of bed; she could neither walk nor stand erect. Being requested by her physician to walk, she made a few steps, but she very soon could neither proceed nor stand, and an assistant had to prevent her falling. When sitting she had full muscular power: There was sensorio-sensitive hemianæsthesia on the left side, and also ovarian—she was cured by hypnotic suggestion.

Hereditary and personal antecedents: neuropathic.

Case XI. (Blocq).—A woman of 52 years, who, seven months after a severe fall on her back, was assailed with grave pains in the loins, without fever; one day when she wished to rise from bed, she fell, in consequence of the lower limbs failing to do their duty; a little after this the upper limbs also failed, but after two months they regained their power.

The pains tormented the patient; they were located in the last lumbar vertebra and the sacrum; they were continuous, and they radiated sometimes to the epigastrium; they were aggravated by movements, but not by pressure. Sensibility was abolished in all its forms as far as the level of the inguinal fold; muscular power was diminished. She could stand on foot, but without assistance it was difficult. Oscillations and also sudden bendings of the pelvis on the thighs, and of the latter on the legs were, in this state, produced. In walking these movements were exaggerated; at every step she bent on her knees and threatened to fall; they were more pronounced on the left side than on the right; and the patient presented manifest hysterical stigmata.

No hereditary or personal antecedents.

Case XII. (My own).—Lady V. B., of 27 years, a resident of Palermo, belonging to a cultivated and genteel family. Blonde hair, rosy cheeks, beautiful person, of Northern rather than Southern type, good constitution, nervous temperament. Osseous, muscular and adispose development regular, nothing abnormal in the psychical sphere; the intellectual and moral conditions highly commendable.

Hereditary antecedents.—Her parents are ordinarily of good health; the father however has suffered several rheumatic attacks; the mother when young was neuropathic, and she suffered convulsions; she had six children,

all normal births; two of these, who are males, suffer from time to time nephritic colics, from calculi, and a sister is similarly troubled, with addition of rheumatic pains; the youngest sister, who is about twenty years of age, has, up to the present time, presented nothing special.

Personal antecedents.—Lady V. was never sick during her first years of life; when she reached seven years she suffered articular pains which subsequently passed, after various attacks, to the muscles, and chiefly to those of the lower limbs. After one of these attacks her skin was covered with vesicular urticaria.

In 1885 she was once more, without any manifest cause, assailed with muscular and articular rheumatism; vague spinal pains supervened, paresis followed, and next paralysis in the lower limbs, which however she was able to move in bed, though but slightly, because of the co-existing rheumatic pains, but she found it impossible to stand or walk. She continued in this state about nine months; recovery, after various fruitless means of treatment, took place spontaneously, in the country. In December, 1887, she was married, and she suffered nothing in her new state of life, excepting a slight increase of fluor albus, to which she was usually subject. In June, 1888, she frequently suffered a sensation of weight in the uterus; the fluor albus continued, and the menses were abundant.

Ultimate state (July and August 1888).—Lady V., at 10 P. M. of the 18th July, on returning from a walk, began to feel an unusual sensation of weight in her legs, which impeded their action; she walked with fatigue and often bent on her knees; when she halted to take breath, she felt that her weakness did not permit even this position; being supported by the arm of her husband, she soon reached her house, but she ascended the steps with difficulty, especially in flexing the knees to rise from step to step. The upper limbs were quite right.

She went to bed a little disturbed, but she slept and rested well, so well indeed that on waking, she tried to move her legs, and she was quite satisfied with the freedom of their movements. In the morning she assured her people that she felt quite well; she said her rest had restored her lost powers, and she wished to rise from bed. Her first movements, for sitting on the edge of the bed, were easy, but the moment she attempted to stand up and to take steps, in order to dress, she was unable to do so, the pelvis bent on the thighs, and these on the legs; she

staggered, but was supported by her attendants who stood by, and she was obliged to return to bed. Here she again proved that she could move her legs in all directions, and she wondered why this was possible in bed, and not on foot, and for walking; at this time she felt lumbar pains. In the afternoon she succeeded in getting dressed, and in being moved to a lounge; here she moved her limbs quite freely, and found her muscular power vigorous. About 10 P. M. she wished to go to bed, she arose with assistance, she found great difficulty in standing up, and in walking she felt, she said, as if her legs were of lead, especially the left one.

This state of things continued for several days. The physician, Prof. Coppola, who had attended her in 1885, now prescribed.

I saw her on the 21st of July, when I found the case to be as follows:

The general state and the nutrition of the patient were very satisfactory; the face rather pale, because of her apprehension of falling back into the malady that afflicted her in 1885; she was lying in bed, and was thus able to take any position whatever; she complained of lumbar pain; there was complete apyrexia; respiration and pulse normal; heart sounds good; the digestive, secretory and excretory functions normal. Pains in the spinal cord did not spontaneously occur, nor even on application of hot water; but on pressing with the fingers I found three hyperæsthetic points,—one at the seventh cervical vertebra, another at the sixth dorsal, and a third at the first lumbar; from the last the pain radiated around the trunk.

She complained of itching in the lower limbs; on the left side exaggerated and painful movements were caused by touch of the point of a finger, or by slightly rubbing the part; this did not take place on the right side, which was much less hyperæsthetic, and retained more vigorous power than the opposite side; in fact, by pressing, on an extended limb, and requesting the patient to resist the flexion which I sought to produce, she did so much better with the right than with the left limb; in like manner also with the knee flexed, and supported by the hand, on requesting her to extend the limb, resistance was easier on the right than on the left. The vasomotor functions, the knee reflexes, and the sensory organs are all in normal state; there is complete apyrexia, the articulations are sound, and the nutrition of the muscles is good.

It was, as I have before said, the month of July, which is very warm in Palermo, where the temperature sometimes, in this year rose to 45° C. (equal 113° Fahrt); and, with all this, the patient kept in bed, with the lower half of her person covered with woolen blankets. On asking her why she did so, she assured me that ever since 1885, she had been obliged, even in summer, to protect her body with woolen vestures, but above all her lower limbs, in which she felt, in every trivial change of health, increased sensations of cold; and sometimes she went to such an extreme in this way, that she felt constrained, even in hot days, to put a hot pan between her legs, which she naturally and more frequently used in winter. She said the impression of cold which she felt in her legs, was very sensible, indeed distressing, and therefore it was necessary for her to wear woolen coverings; there were, however, short periods in which this feeling was less, and it disappeared entirely when recovery commenced, yet even after recovery she still retained her woolen protectors.

It seemed to me that these sensations of cold, on such hot days, might be only subjective; but thermometric observance gave the following figures:

	In the ham.	In the axilla.	Fahrenheit.
Without pain or cold in legs,	36.7°	37.°	98 & 98.6°
Pains tolerable, a little cold in legs,	36.°	36.7°	96.8 & 98.°
Slight pains, very cold in legs,	35.1°	36.7°	95.18 & 98°

It is seen that though the sensation of cold was subjectively somewhat exaggerated, there yet was a real lowering of temperature, a phenomenon due to disturbance of the vasomotors, and not new in persons suffering under rheumatic neuropathy.

The painful points found on the spine were not constant; they wandered over the spinal region, and it was frequently observed that they interchanged with those in the lower limbs; they ceased in the limbs when they invaded the spinal medulla, and *vice versa.*

The patient usually rested and slept in the night, excepting that now and again she was roused by painful startings, and in moving her limbs she felt the knee and ankle joints crackling. Sweatings in the night were frequent, and sometimes her sufferings ceased when these occurred.

In the night of 22d and 23d July, there spontaneously

took place a transposition of the phenomena, between the two limbs;—that is, the hyperæsthesia and muscular weakness passed from left to right and stayed there for three days, then it reverted to the previous state; afterwards, other transpositions interchanged without any aggravation of the symptoms.

Towards the end of July the pains and paralysis gradually diminished, so that the patient was able to take a few paces in her room, but she soon tired. Any emotion suffered by her, threw her back into the first state, but from day to day the painful and paretic sufferings mitigated, and on the 8th of August she began to make use of her limbs, feeling only a slight pain and difficulty in articulating the knees while coming down and going up stairs. At the present date, August 20th, she is quite well.

In the course of her sufferings, which were chiefly about twenty days, she did not lose her appetite excepting on two or three days. She found a great need for wine, especially Marsala. Digestion was very good, and all the functions proceeded regularly; there was not at any time pain in the head, or painful radiation to other organs, she never lost her good humor,—unless on rare occasions, which coincided with the aggravation of some symptom.

Though there were some hyperæsthetic zones in the spinal medulla, there were not any in the other parts of the body; pressure over the ovarial regions was unfelt; there was no hysterogenous zone.

As regards other observances, among which the endocular, I can furnish no data, for I could not abuse the courtesy of the patient, who was so condescending as to relate to me, and to permit me to observe, whatever has above been related, and this seems to me sufficient for the following etiological and pathogenical considerations, which may be summarized in two corollaries.

1st. In nearly all the twelve cases, the rheumatic, or the nervous, diathesis was noted in the personal and hereditary antecedents; in my own case both obtained.

2nd. In all these cases, when we place in second rank certain consociations or phenomenal variations, the characters which chiefly and constantly existed in the clinical form of the malady, were, loss of the movements necessary for standing erect or walking, yet with retention

of perfect sensibility, muscular power* and ability to move the lower limbs in any direction whatever, whilst in bed or sitting.—Recovery is the usual termination.

Dr. Blocq, after observing some variations in the symptomology of the cases collected by him, concludes thus: "The capital fact remains, briefly this, the integrity of the muscular acts in decubitus, and their non-appropriation† to the accomplishment of the spinal functions for standing and walking; hence the justification of the terms astasia and abasia which we have proposed for adoption.

"Astasia and abasia represent only the appearance of the phenomenon; the talented French author was therefore resolved to penetrate to its intimate nature, or mechanism, and though for the sake of brevity, I do not quote all he has said on the subject, we may rest satisfied with the following paragraph, which I give in full, from his work.

"The definition which we have given of this malady implies the idea of a paralysis of special muscular synergies, similar to what happens, for example, in pure motor agraphia, in which the motor impotence depends not on paralysis of the ordinary movements, since the patient makes free use of the hand in executing the common movements, and also in the systematized, as in drawing, etc., but he has lost the memory of those special movements which are necessary for the structure of writing. The same happens in the cases now treated of, in

* NOTE.—What assurance have we of the retention of power in those muscles which serve in the act of standing erect? The patients, in trying to stand erect, have not lost memory of the necessary movements, but their volitional behest either fails to reach the muscles, or these are unable to respond to the command. Can this condition be consistent with integrity of muscular power?

† NOTE.—Are the movements which are executed "in decubitus" capable of appropriation to standing or walking? The muscles required for the former are not those which move the legs and thighs in all directions, when the person is lying in bed, or sitting on a chair, though they take a part in the act of walking, when the muscles for keeping the body erect give them the opportunity for working. Must not abasia, or the inability to walk, in these cases, be the necessary associates of astasia, or inability to stand? Dr. Salemi Pace's patient, Lady V., when halting to take breath, found it hard to keep erect. No doubt when, of two sets of muscles accustomed to act in unison, one set ceases to act, its associate will not escape functional deterioration: and is it not the fact, or at least very probable, that both sets stand connected with the same centres in the cerebro-spinal axis?

which the motor impotence does not depend on paralysis of the general movements, which the patient executes with precision, but rather that he has lost the memory of those particular movements which are necessary to enable him to stand erect, (astasia), or to walk, (abasia)."

Dr. Blocq then hastens to show that this loss of memory is spinal, and by no means cerebral, proving this by physiological and pathological facts.*

Such were the views, in which I fully concur, that have induced me to denominate the case above described by me, partial spinal amnesia, not indeed because I decline to accept the two new terms of the French neurologist, but because it seems to me that my denomination promptly indicates the nature of the malady, without the need of recourse to other neologisms. But this is not the whole: I think that in the pathologic physiology of this disease, we may advance some paces farther than Dr. Blocq has ventured.

Starting from the facts that the phenomenon of memory in its genesis, is represented chiefly by two factors: 1st, The registering of peripheral sensorial impressions on the central cellulo-nervous elements (the static basis of memory); 2nd, the dynamic co-ordinative association with the reproductions of these registrations (the dynamic basis of memory), the desire becomes legitimate, to know whether the spinal mnemonic change, of which Blocq speaks, occurs in the first or the second basis, or in both together.

Considering my own reported case, in which I was fully persuaded of the complete integrity of the cerebral

*NOTE.—It must be difficult to ordinary readers, who cannot conceive of the exercise of memory apart from consciousness, or mental action, to comprehend the applicability of the term to a morbid condition of the spinal medulla. The ascription of memory to this organ can hardly be legitimized, unless under poetic license, and then it must be accepted as an accommodative substitute for some unknown physiological condition, for which the author could find no exact verbal designation, and in consequence of linguistic penury was obliged to find refuge in metaphor. No one would deny this liberty to a poet, but in science it may not always be profitably indulged in. The Psalmist of Israel was not misinterpreted by his Hebrew brethren, when he prayed that his "right hand might forget her cunning" rather than he should forget Jerusalem; but the student of medical science should never be obliged to understand the prelections of his teacher in a "Pickwickian sense."

functions, and therefore had no reason to believe that any defect of the volitional command for standing and walking existed; considering also that in bed or when sitting, the commands for moving the lower limbs in any direction whatever, were precisely obeyed, and thus the cortical integrity was confirmed, I could not but conclude that the spinal medulla alone was suffering a special and partial functional modification, with the loss of dynamic motor memory, rather than of the static. I have said *partial*, because only one of the two genetic factors of memory, the dynamic, is affected, and in this one the loss is partial—that of walking and standing erect—whilst all movements, when sitting or in bed, are volitionally co-ordinated.

It has been said that man, in his earliest phases of life, is a spinal creature, and very truly so, for his peripheral sensory organs have not carried into his brain the correlated images. Psychical memory does not then exist in him; it commences to exist when the nervous cells are in a condition to gather in and store up the perceived sensorial impressions, and to transform them into images. In due succession, by means of the entrance of new images and the coincident and gradual perfection of structure, another important fact is rendered possible, which is the conductibility established bythe nervous filaments between the different mnemonic zones, so that the different images deposited in them, may be co-ordinated, and may be evolved in the form of that phenomenon which we call psychical memory.

The brain of the new-born child is, with good reason, regarded as a virtual organ, in the sense that it virtually contains the innate properties of apprehension, together with those greater or less, more or less perfect, or more or less vitiated properties, which atavism, the generative momentia, or the qualities of the propagators, have been able to transmit. The spinal organ, in many animals that stand below man, is possessed of greater capability than his exhibits.

Some animals walk the minute they are born; an evident proof that nature has, in their evolutive phases, transmitted into their spinal centres both the static and the dynamic memory. The new-born child, when left free on the bed, moves its arms and legs in all directions; in this case it makes use of the innate static motor memory, or better to say, of that transmitted from antecedent generations; it uses the inco-ordinate automatic motor activity; the co-ordinate has to be learned afterwards, in order that the child may be able both to walk and to stand erect. In other words, it has not yet learned to co-ordinate those special movements which are destined for a definite purpose.

It is true that to all this we should add, that the child wants that strength and neuro-muscular tone which are required; but this strength and tone would go for nothing did the nursing mother not teach the child to walk. Let a well-developed boy be constrained to sit constantly, and not only will his activity remain undeveloped by the neuro-muscular tone, but it will languish, for though the organ performs the function, we also know that the function and its exercise form (*sic*) the organ.

It is easy, after what has been said, to infer that astasia and abasia, as I have before said, constitute but a partial spinal amnesia, with the adjunct, that this amnesia, in the cases collated, as well as in that of Lady V., pertain to the dynamic sphere, or that of co-ordination, rather than to the static, or that of registration.

If the studies of experimental psychology and comparative physiology should not suffice to sustain the idea I have expressed, I can turn to the authority of able clinicists, who, like myself, have studied the disease in question in their actual practice. Jaccoud names it "ataxia, from default of automatic co-ordination," Charcot and Richer "motor inco-ordination as respects standing and walking," and Mitchell "hysterical motor ataxia." It is then clear that these authors saw exactly the principal clinical character—inco-ordination or ataxia—but in declaring the

apparent phenomenon, they did not feel the necessity, as Blocq did, of scrutinizing its nature; he penetrated to the nucleus, if I may use the expression, and I, if I am not deceived, would push into the nucleolus.

Inco-ordination, or motor ataxia, is then but too evident, but this morbid defect has as its substratum, loss of partial spinal memory; and it now remains for me to say why I have decided to add to this the words "through rheumatic neuropathia."

Although in the eleven cases herein cited from different authors, the neuropathic and rheumatic diathesis seem to be only casually noted, yet in my case, the twelfth, both are conjoined and are very evident, and I therefore purpose to appropriate to this case, which has been the object of the present communication, the following observations.

The authors who have treated of this malady concur in the fact that hysteria figures with some frequency in its etiology; hence Weir-Mitchell calls it hysterical ataxia, and Blocq, in his eleven collected cases, has noted five of clear hysteria. We find however in recalling the chief symptomatic manifestations in the case of Lady V., the characteristic stigmata of hysteria were absent; there were no convulsions, no hysterogenous and no ovarial zones, etc., etc. But notwithstanding all this she is exquisitely neuropathic, a diathesis transmitted to her by her mother, and she is rheumatic by transmission from her father. This conjunction has been noticed by other observers. Roche and Cruveilhier looked upon muscular rheumatism as a species of neuralgia affecting the terminal nervous expansions in the muscles. Valleir and the authors of the "Compendium," accepted these views; subsequently other pathologists, before definitively admitting them, desired to consult pathological anatomy, but it was in vain.

It is very certain, that in so painful a malady, it is difficult completely to exclude the intervention of the sensitive nerves, which may, by their morbid reflexes,

influence the principal nervous centres. Besides it is known that independently of the reflexes, rheumatism is of a wandering nature; from the muscles it goes to the joints, from these to the viscera, stomach, and heart; why then should it spare the nervous centres? Clinical observation has recorded not a few examples, which I cannot properly now detail, but I reproduce the words used by Dr. Ball in one of his brilliant lectures, in which he treated of rheumatic mania.

"Among the diathetic affections whose influence may reach the brain, rheumatism merits a place of honour, less even for its frequency, than for the exactitude of its manifestations."

In truth these points have been largely insisted on by alienists, rather than by general pathologists, from whom we derive but general and doubtful notions; for example, G. Homolle says, "the relations which may exist between different cerebral affections and constitutional rheumatism are little known, and as to the affections of the spinal cord, they have no certain relation with rheumatism; in some cases examples of myelitis or of rheumatic paraplegia may have been seen, but they all present grounds for disputation."

My case however presents no grounds for disputation; the existence of constitutional rheumatism in the father of the patient, in her sisters and brothers; her rheumatic sufferings prior to 1885; the year in which rheumatism was conjoined with the special neuropathy and manifest paralysis of the lower limbs; the evident spinal localization in the recent attack of July, 1888, in which the paraplegia was so characteristic as to warrant us in holding that, in opposition to the malady of 1885, the neuropathic alteration prevailed over the rheumatic; the fact that the pains in the knee disappeared when they invaded the spine, and *vice versa*, all these go but to confirm, on one side, the intimate relation between the rheumatism and the spinal affection, and on the other side, to justify the title and the diagnosis of spinal partial amnesia from

rheumatic neuropathy. "Whenever," says Leclerc, "rheumatism falls on a neuropathic organism, its manifestations participate simultaneously, or alternately, of rheumatism and neurosis, the two are confounded (mixed up), they reappear or intensify under the influence of the atmospheric variations of cold and humidity, or of neural causes.

"The element of pain always dominates in such cases, either in the form of fixed or erratic neuralgias, in the muscles, the joints, or in the sensitive nerves, sometimes under the form of a more or less persistent neurosis."

Besnier, as cited by Grasset, writes thus: "There is a form of rheumatism, very little understood and incompletely described; it is disseminated through the entire nervous system, without attacking in a more or less acute manner, the joints, and which, in turns, seizes the nerves of the life of relation and those of organic life; it attacks the muscular tissue, and manifesting itself in migraines and various neuralgias, nervous palpitations, attacks of gastralgia or of enteralgia, it assumes, so to speak, the march of a true general neurosis. We here evidently have a rheumatic neuropathy, the nature of which is revealed by the antecedents of the patients, as well as by the succeeding attacks."

I have wished to corroborate my views (though they are founded on rigorous clinical observance), by the authority of Leclerc and Besnier, but in the rest, as appears from their own words, they have not made the least allusion to rheumatic influences on the chief nervous centres—the brain and the spinal medulla. But some time ago, Charcot gave those excellent lectures in which he demonstrated the importance of those articular alterations, resulting from rheumatism, which by repetitional attacks, have sometimes changed the nutrition of the spinal cord. Thus he spoke:

"The articular affection has, through the paths of the irritated articular nerves, a hold on the spinal centre, and there it modifies those centres from which proceed the

motor nerves and the nerves which preside over the nutrition of the muscles. * * * * We are therefore reduced to the necessity of admitting a neuropathic spinal affection, and it is in consequence of this affection that paralysis and atrophy are produced."

This theory of morbid reflexes, is not fitted to my case, in which the rheumatic disturbance directly affected the spine, which, by reason of hereditary neuropathic predisposition, was so ready to be functionally deranged.

The cases, as we have seen, are of rare occurrence, but they should be diligently collected, especially because of the variety of the morbid alterations that take place in the spinal medulla, in which, just as in the brain under morbid influence, its various functional properties are dissociated, and of these properties more may be exhibited by one patient than by another.

Notes on the Legitimate Sphere of Special Medical Practice.

EDITORIAL CONTRIBUTION.*

SPECIALISM, if fostered in a too exclusive manner, may prove dangerous to the well-being of the profession of Medicine. A hidden danger lurks in the special society which withdraws itself from the general profession to work out for itself a special and exclusive salvation. Not all medical societies having special objects to promote are dangerous to the well-being of Medicine, notably the Association of Superintendents of American Hospitals for the Insane, the Association for Promoting the Welfare of Imbeciles, etc., and all societies that co-operate with the general medical body as sections for the better accomplishment of work.

Specialists may do themselves and the profession great good by forming societies for certain objects, such as discussing operative methods, subjects to be brought before the general medical body, the public care and provision for certain classes of cases, as inebriates, imbeciles, epileptics, drug drunkards, paralytics, etc.; but specialism organized and sustained by specialists as distinct and exclusive fields of work in which the general practitioner will not be countenanced by the several specialties, is unprofessional and unnatural because not founded in scientific fact.

Medical disease is seldom or never an exclusively local affair. Our gynecological friends saw this when they virtually took possession of all of woman's ailments, whether they were common to the sex or not, in the name of *gynecology* rather than in their proper name and field of *hysterology*.

* Substance of a paper read before the St. Louis Academy of Medicine, February.

There are some surgical exceptions, but not really a great many of them, so that even the widest experienced medical man makes the most successful special operator in results.

A physician who treats a special disease without regard to his patient, *i. e.*, the influence exerted by it on the whole organism and the whole organism on it (and this necessitates a constant mingling with general practitioners and the study of morbid processes in general), will make a miserable failure, as many specialists do, both in diagnosis and therapeutics. It reflects no credit on the specialist or upon Medicine as an art before the public, for a patient to fail of relief at the hands of a specialist of repute and go from him to some widely observing common-sense physician, who has learned the therapeutic secret of treating his patient as well as his local disease—of treating the whole case as well as the part which specially attracts the patient's attention, and be thoroughly cured by the general practitioner.

The public are apt to look upon Medicine from such experience as a sort of a chance business, especially when men who have general professional support and confidence make such failures.

Now a specialist should know all (as the lamented Hodgen said), all that a general practitioner knows on his subject and something more, and if he does not possess this knowledge, besides a special skill in manual dexterity and therapeutics, he should not be countenanced by the profession. The profession should be no party to this species of fraud upon public confidence.

The field of practice is large and the whole work of general practice is too onerous for one man to do, though he be ever so competent, and though he has but a small share of public confidence. Besides the operations of general and special surgery, who can conduct all the necessary instrumental manipulations of modern diagnosis and practice with the requisite skill for complete success in an average general practice? The ophthalmologic, the

rhinologic, laryngologic, otologic, urethral, vaginal, rectal, vesical, pulmonary and cardiac explorations, cerebral thermometry, æsthesiometric examinations, urinary and gastric analyses, and electro diagnosis, and apply even the localized treatment that these explorative procedures indicate? To one man in *fairly good* practice, the task would seem scarcely possible—to a physician with a *large* practice it would be absolutely impracticable.

A division of labor in practice has become, therefore, an imperative practical necessity and is an accomplished fact. Special workers must exist to supply the demand of the day, in the profession as well as out of it. But while this specialized division of labor should be encouraged by physicians in a broad, liberal and scientific spirit, for the relief of an otherwise over-worked profession and the welfare of communities, *there is no room for specialism as a professional caste* in the practice or science of Medicine. Special practice honorably and reciprocally pursued by physicians as a necessary division of labor, may be a source of relief to the whole body, and prove promotive of true scientific progress, but specialism distinct, exclusive, non-fraternal, which tosses its head and says to the great, observant, thoughtful and efficient body medical, "Stand thee back! I am greater than thou," is narrow, selfish, conceited and deadly in its influence.

The specialist, for instance, who takes the nose for its field, or that which takes the ear, or eye, or throat, or thorax, rectum, vagina or urethra, for its field, and assumes the incompetency of the physician in family practice to explore and decide upon disease within the specially hallowed precincts of these cavities, and proclaims them to the outside world as unknown fields to the general practitioner, is too narrow to live *in cathedra* of professional confidence, and the sooner such are excommunicated, the better for the profession. All specialism bred of such ideas and practice ought to die, never to be resurrected in public or professional esteem.

The man who explores the eye or the ear, the nose or the throat, the thoracic, abdominal, pelvic, cranial or cerebro-spinal regions, with a view to treat the diseases found in them, should know the whole body and its general susceptibilities to and impressions upon local diseases. He should know and understand well the organic environments of all local diseases he would master. Who, that knows not syphilis or hysteria well, in their pathological bearings upon local diseases, can either diagnose or treat with any claim to special skill any localized manifestation of disease in any particular organ of the body, claimed by some as the peculiar and exclusive domain of specialism.

Yet there are men in these fast days, who have scarcely dropped their professional swaddling clothes, put on them by an *alma mater* given to abortions at the time of their premature birth into the medical world, before they assume the *rôle* of matured specialists, skilled beyond the most vigorous and well-informed and wide-awake physicians.

Coming into the world thus untimely and dropping into special work before acquiring a normal maturity in general medical science, they go through as miserable medical abortions, fit samples of the medical midwifery that brought them forth, bearing the marks of their bungling and untimely instrumental delivery in their contracted and shallow craniums to the end of their *mediocre*, if not ignominious careers.

They fail to secure professional confidence and support, and never know why, because they have learned too little of general Medicine, too little of that large general knowledge possessed by others, even better informed specially than they are, though less pretentious and assuming.

There is room in practical medical life for broad-minded and well-informed and highly skilled special practitioners—there is more than room, there is a special demand for them. There is no sphere for commonplace specialists, whose chief aim is to be special, and who make

specialism and not the glory of Medicine their purpose in life. Let me give an illustration of how a true specialist may be developed:

A young man of moderate natural ability and fair general education, enters upon the study of Medicine, getting didactic, clinical, dead-house, and laboratory knowledge of every kind within his reach, in a good college curriculum. He does not decide, for he does not know his aptitudes and tastes, what branch he will prefer to practice. He does not know that he will become a specialist at all, but leaves that to his future opportunities and surroundings. He graduates with fair honors and is offered a position in a hospital. He accepts, sees all the patients there, notes their diagnoses and treatment, sees the prescriptions filled or helps to fill them, sees the patients take their medicines at times, and sees them under the effect of their prescribed remedies. If they die, as some will, he sees or makes the *post-mortem* examinations, and notes the necroscopic sequences or probable antecedents of symptoms. He has not yet decided on his specialty for he does not yet know what are to be his future environments. He goes a year or so in the country, or in a small village to recuperate, and does some practice. He cannot take a specialty very well there. Population is too scattered and patients are too varied and too few. But he applies his hospital-acquired skill in physical chemistry, etc., diagnosis, and minor surgical practice, for the benefit, sometimes, of his less fortunate country medical brethren. He accepts a proposition from some older and over-worked country practitioner, and does the best he can, studying the whole geography of his great profession. He looks over the vast field of general practice, and his vision enlarges as his wonder grows. He sees a great country, but no part of the territory is foreign ground to him. It may be new in many of its aspects but it is all his country, and a professional pride, akin to patriotism, swells his bosom as he contemplates the magnitude and grandeur of the great republic of Medicine. The physician's life, with all

its hardships and trials, is a great and hallowed glory. Though laborious beyond that of many callings, no part of his work is menial or despicable. His walk through life, though destined to be a foot-sore and a weary one, often, is next to that of the Divine Master and Saviour of men and His revered apostles, who went about with Him, healing the sick and doing good.

A call to arms is sounded and his fair country is ensanguined by fraternal blood. Answering the call of duty, he goes forth to help repair the ruin of man's passionate fury towards his fellow. He finds no room for a specialty in the army except the general specialty of relieving and curing the suffering.

But there he staunches the free-flowing blood of battle, or fights the poisoned pestilence of camp, or the destroying fever, or exhausting weariness of the march. During all this time, he is learning by saddening experiences, of the damaging power of disease and violence, physical, chemical, mental, upon the human organism; how it is influenced by, how it succumbs to, and how it resists disease, local and general. He is becoming familiar with the potency of the *vis morbi* and the *vis naturæ.*

Hidden things in the phenomena of morbid and physiological movement under the presence of disease, are being revealed to him in a new light. His specialty is as yet bounded only by the limits of the whole human organism and its healthy and morbid surrounding influences.

Now his mind, made elastic and receptive by a liberal literary education, though mainly self-acquired, as all real educations chiefly are, has expanded and grown.

It now takes in, as it never did before, like a high power glass, the whole surrounding field, and this observant student of Medicine, for he is yet only a student, discovers that he cannot work in the whole field with best advantage to himself or his fellow-man, so, having learned by a survey of the whole, what and where the parts are, he is ready to take his special part on the battlefield of life for future work and glory.

The mangled wounds of war he could not heal are covered forever by the friendly earth, and fraternal hands, forgetful and forgiving of the dreadful past, are clasped in mutually pledged fidelity to the common flag, over the blood-stained but securely covered chasm.

The young surgeon and physician, no longer a youth, but matured in Medicine, is now ready and fitted for a special field of work. Many of the best special practitioners of the present day so fell into their special work.

An asylum for the insane is opened by impartial hands to receive him as its chief physician. He enters to take charge, not as the poor chronic dement, hopeless and leaving hope behind, but sustained by an unfaltering confidence, born of a wide experience and honest study in the whole domain of his profession. It is a field in which all the general knowledge acquired during his whole previous professional life may be brought into requisition, for the insane, like other human beings, are subject to all the various maladies that may afflict mankind in general.

The special and exceptional duties of his new field he knows how to learn with facility because he has learned the common methods of observation and the general principles of practice. Most of our best alienists have been so made.

His is a liberal profession and his brethren are governed by the true fraternal spirit enjoined by the Divine Master when he said, "Whatsoever ye would that men should do unto you do ye even so to them."

With this confidence and in this spirit he goes among his brethren specially advanced in psychiatry, and learns of them.

They give him freely, as he willingly receives, and his fate is made as an alienist physician. Incidentally he has learned much of neurology, and when he leaves this hospital after a term of years, though he would practice his profession on the basis of his general knowledge of disease, his brethren seeing his special fitness by reason of a wider experience, and no way narrower knowledge than the general practitioner, they name him for consultations and place

in his hands specially trying cases, while some less charitable men, designing and envious, speak of him as simply an insane doctor, and allow the unjust inference to be drawn that he is not fitted for general practice, though the true alienist and neurologist is and ought to be the very best of physicians, by reason of such exceptional opportunity for a singularly wide and varied experience.

But it is thus, by fair and by foul means, his practice is narrowed and his work becomes too onerous in a special line to permit of his engaging in general practice, and this is how the best special practitioners in all departments of medical work are made. They are developed by a process of legitimate evolution, and, developed in this way, they are the fittest to live, and such special practitioners will survive while immature pretenders will die. Such specialists can never foster an odious and objectionable specialism. Their love for the profession at large is too strong—their interest in it has become automatic by long mental habit. The heart of the profession may safely trust in them, like the heart of a husband in a virtuous wife. They will do the profession good and not evil all the days of their life. With such specialists engaged in the practice of Medicine, in a limited field of work, neither they nor the profession at large shall have need of the spoil that comes from unworthy practices or ignoble aims.

Mental Relations of Heart Disease.*

AS ILLUSTRATED BY MATTHEW ARNOLD AND JOHN HUNTER.

By Jas. G. Kiernan, M. D. Chicago.

VERY frequently an account of death from heart failure is preceded by the statement that the deceased was in "unusually high spirits just previous to death, which occurred after unusual exertion." Cases of this kind, reported so frequently, naturally raise the question whether this condition of "high spirits" be not the expression of a pathological state? A ready answer to this question can be given only after careful examination. Griesinger many years ago called attention to the existence of emotional variability in sane patients suffering from cardiac disease. Very little attention has however been paid to this operation, which would be somewhat astonishing, since the state described is far from infrequent, were it not for the fact that mental phenomena arising from ordinary somatic disease are but little studied—in fact are pretty generally ignored, unless they reach the dignity of gross mental abnormality.

To form an idea of the influence of cardiac disease on the mental state, we are forced to study the insane, since mental phenomena, arising in them, from any given somatic cause, are simply exaggerations of the minor mental phenomena of the same type found in the sane afflicted with the same disease.

The relations of insanity with all somatic disease are fourfold: Insanity is produced by somatic disease; it may produce somatic disease; it may be modified by co-existing somatic disease; lastly, it may modify co-existing somatic disease.

* Read in outline before the Chicago Medical Society, July 2, 1883.

The influence of cardiac disease in the production of insanity was greatly over-estimated during a period of theorizing as to somatic etiology by Nasse and his contemporaries.

The types of insanity arising from cardiac disease are characterized by suspicion and emotional mobility: An exaggeration of the mental condition observed by Griesinger to result in the sane, affected by cardiac disease. Mickle* expresses the opinion that heart disease may act by disturbing the balance of the general circulation; it may act by disturbing the intracranial circulation; this includes its effect on the local vasomotor apparatus. It may operate by leading to a change in the composition of intracranial blood; in a similar way it may affect the blood generally; it may act similarly by the pulmonary disorder it induces and the morbid impressions and sensations resulting therefrom. It may become, through the nerves, a source of peripheral irritation, and influence cerebral functions, reflexly by sympathy, inhibiting some forms of activity and deranging others.

Griesinger is of opinion that an etiological influence must be ascribed to cardiac disease whose effects are noticeable in an exaggeration of the emotional mobility, suspicion and depression of cardiac disease which occur in the sane.

Luys has found that the symptoms of the psychoses produced by cardiac disease are excitement and loquacity, followed by more or less prolonged somnolence. In cases where the cardiac disease shows itself in periodical dyspnœa, with extreme respiratory anxiety, there is an equal periodicity in the psychical symptoms, which show themselves at the height of the respiratory anxiety and disappear with it.

Hertz is of opinion that suspicion, irritability and emotional mobility are produced by cardiac disease.

Burman has observed both suspicional and exaltational states to result from cardiac disease.

---

* The ALIENIST AND NEUROLOGIST, 1888.

Savage expresses similar opinions as to the etiological relations of heart disease to insanity.

Greenlees states that heart disease occurs with greater frequency among the insane than among the sane. That among the sane, heart disease appears to exercise an important influence on the mind, changing the temperament and altering the character of the patient. This change may become so prominent that the psychical phenomena exhibited may be those of actual insanity. Not only does heart disease alter the type and delusions of insanity, but cases occur in which cardiac lesions are the direct predisposing cause of insanity. He has found sane patients with cardiac disease to be quick-tempered, easily excited and extremely passionate.

Tissot is of opinion that emotional states may produce, in time, more or less hypertrophy. Greenlees, reasoning from this, is of opinion that long-continued mental excitement must cause a dilated and latterly a hypertrophied heart; an opinion confirmed by his own findings and those of Dr. Pietro.

Forbes Winslow is of opinion that emotional mobility, suspicion and irritability are produced by heart disease.

Alice Bennet thas found that emotional mobility and suspicion characterize the mental phenomena of cardiac disease.

P. Macdowall finds as a general but not an invariable rule, mitral disease produces melancholic symptoms and aortic lesions, more frequently those of a malarial type.

Dickson has had very similar experience to that of Macdowall.

D'Astros has found that patients with aortic disease display very frequently an extreme impressionability, a variable, capricious and fantastic character, and an exaggerated susceptibility. The patients with mitral lesions are somewhat self-contained, and reticent. They are reserved, taciturn, manifest a *tædium vitæ*, and are at times plunged into extreme depression.

Mildner has reported cases in which cardiac insufficiency were accompanied by emotional exaltation, followed by suspicion and furor.

Dr. Harriet C. B. Alexander* has pointed out that the pressure neuroses of pregnancy are often exerted through the heart on the mental state.

That insanity produces cardiac disease is demonstrated by the experience of Salemi Pace, Milner Fothergill, A. Mickle, Griesinger, Clevenger, and others. Salemi Pace and Milner Fothergill agree that in states of emotional exaltation cardiac murmurs, especially of the aortic valves, are frequent without valvular lesion.

Griesinger has noticed that in states of exaltation, murmurs, particularly of the aortic valves, are very frequent without coincident valvular lesion. He states that observations in the Vienna asylum show that during maniacal conditions the heart sounds are indistinct during great excitement, and become clear when calm sets in.

My own experience is in accord with this. I have also noticed† that in the cataleptoid state of katatonia temporary murmurs result.

These facts prepare us for the demonstations of Salemi Pace, A. Mickle and Clevenger, that the emotional perturbations of the insane result in so disturbing cardiac nutrition as to produce changes in the walls and valves of the heart.

Sibson has noticed that the chief psychical symptoms presented are depression; sometimes the patients were taciturn; sometimes they had hallucinations, and sometimes displayed lypemaniac frenzy.

Morel has observed in patients attacked by paroxysmal dyspnœa resulting from cardiac disease, the periodical return of strange ideas, hypochondriacal sensations, and hallucinations of a depressing nature.

Krapelin states that heart disease exerts a peculiar influence on the types of insanity which occur during

* The Alienist and Neurologist, 1890.
† The Alienist and Neurologist, 1882.

acute rheumatism, causing them to be of an emotional, suspicional type.

Spitzka holds that the view that cardiac hypertrophy of the left side with aortic valvular lesion is more apt to be associated with maniacal conditions, and cardiac hypertrophy of the right ventricle with mitral valvular lesion with melancholic states, is supported by too few observations to merit acceptance; the blood-pressure in recorded cases was not registered, hence these are destitute of value. The heart has important and direct relations to the brain, and it is very likely that just as disturbances of the vagus innervations are responsible for the *raptus melancholicus*—in other words, just as a disordered state of the brain reacts on itself through the medium of the functional cardiac influence it produces—so a valvular lesion may directly influence the emotional states without pre-existing brain trouble. It is a fact that patients suffering from cardiac lesions are more likely to develop anxious and suspicious delusions than those of an opposite nature. He points out that cardiac disease furnishes a rich pabulum for delusions.

These facts have a direct bearing on the prognosis of the disease. Mental and physical quiet is urged on almost every sufferer from cardiac disease. For a long time such advice is observed. The suspicional state arising from the disease and the long-continued relief from untoward symptoms resulting from this rest predisposes the patient to take a different view of the state of things from his physicians. When emotional exaltation results from disease, there are but few checks on the patient to restrain his indulgence in exuberant horse-play.

These features are well illustrated by the case of Matthew Arnold. Matthew Arnold came from a well-balanced English family—one of those old English families who have learned to restrain emotion. His father, the head of the famous school at Rugby, which Tom Hughes has immortalized, was also a sufferer from cardiac disease, but old Dr. Arnold was very favorably situated;

he was in a position to lead a regular, uneventful life. His course of study and course of life was laid out for him, and he was held in high esteem by those by whom he was surrounded. For that reason he died well advanced in years and universally regarded as a gentleman of peculiar sweetness of temper, amiability, and exactness in all particulars. Many of these traits were noticeable in his son, Matthew Arnold, who called himself the "Apostle of Sweetness and Light."

He preached to a certain extent a philosophy somewhat modified from the theory of the quietist philosophy, which was practically a survival of Buddhism. There is little doubt but that admiration of this restraining philosophy, which Arnold adopted to a certain extent (as did Cowper, another man of letters who was demonstrably insane) had good results. Matthew Arnold's disease improved under the influence of this philosophy which tended to restrain all emotional display. His training also restrained all emotional peculiarities as "bad form." For a long time Matthew Arnold was in many respects a model man. About twenty-five years ago he contracted heart disease in consequence of a rheumatic attack which affected the aortic valve. I believe there finally developed a mitral lesion, too, but of that I am not certain. The aortic valve was affected, and he had aortic stenosis. Through the advice of Sir Andrew Clark he led for a long time a comparatively quiet life. He devoted himself to subjects in literature that would tend rather to restrain the emotional element than to develop it. On the other hand, of late years he had been less restrained. In point of fact it was one of these emotional displays that alarmed Sir Andrew Clark and made him lay the injunction on Matthew Arnold to lead a restful life. At times his disposition was anything but sweet; some of his poems, one of which has been republished recently, in dealing with the medical and clerical professions, manifests a cynicism which would not discredit Swift.

This cynical mood was purely spasmodic, and it was

often replaced by one in which his title of Apostle of Sweetness was well deserved. It is noticeable that the same period of buoyancy was succeeded afterwards by one in which horse-play was a distinguishing characteristic of the apostle. In the period preceding his death these alternations were singularly frequent and well marked. He had been exceedingly bland and buoyant. Soon after he decided to show his young friend his manly agility, he attempted to jump over a gate and fell dead.

John Hunter illustrates the dyspnœic type of Luys. His paroxysms of irascibility were readily brought on by mental excitement, aggravated it, and were in turn increased in severity by it. To his disorder is due the suspicion with which he regarded William Hunter and which at one time led to an unseemly quarrel. John Hunter died in a paroxysm of irascibility.

The bearing of these facts on prognosis is simple and direct. Mitchell Bruce has pointed out that the prognosis of cardiac disease in what he calls "nervous cases" (which include cases where emotional mobility is well marked) is unfavorable. The cardiac disease but too often produces these emotional states, and they aggravate the cardiac disease.

Given, therefore, a case of cardiac disease in which emotional displays occur frequently, these last indicate moral treatment; and furthermore, indicate a very unfavorable prognosis, more especially since, as already stated, too often suspiciousness occurs, resulting in distrust of the physician and of remedial measures. These frequent perturbations cause a nutritive change in the heart, and as Bruce, A. Mickle, Salemi Pace, Tissot, Greenlees and Clevenger have shown, are very important factors in the production of cardiac weakness.

The point on which I desire to lay stress is that this great buoyancy which occurs in the course of these troubles is as much a part of the disease as the murmurs, and furthermore, instead of feeling encouraged by the patient's buoyancy and good spirits, an effort should be

made to restrain them as much as possible. This emotional factor in most ordinary diseases is a good deal ignored; and this is particularly true of cardiac disease, although by the older authors, like Griesinger and Watson, attention is called to these facts. A good deal could be done by moral measures to restrain these emotional displays, and by remedial measures, and control of the heart's action by the proper use of certain cardiac tonics. A case of cardiac disease, in which these emotional phenomena occur with great frequency, is very likely to have a bad prognosis, since the emotional condition is produced by the cardiac disease; and, on the other hand, these recurrences of emotional excitement are more and more likely to be followed by cardiac failure and degeneration.

The *British Medical Journal* exhibits a singular misconception of the principle underlying this moral treatment. It says:

> We agree with Dr. Kiernan and Dr. Sutton, that complete command of the emotions might be the best thing for our merely animal life. Perhaps, if we adopt the faith of Buddha, or become Stoics, we might be less subjected to nervous and other diseases, and live to an advanced age, but more Englishmen would be inclined to say with the poet, that
>
> "We live in deeds, not years; in thoughts, not breaths;
> In feelings, not in figures on a dial."
>
> And, looking back on our history, most of us would exclaim with the Laureate:
>
> "Better fifty years of Europe than a cycle of Cathay!"
>
> Our emotions are to be educated, not crushed out. Vegetating is not the life of Englishmen. And as Matthew Arnold insisted on quietness, meditation and calm, he himself exclaims:
>
> "Calm's not life's crown, though calm is well."
>
> We all see in our practice, how religion, which from a practical point of view might be spoken of as applied philosophy, tends to soothe the spirits and make men go easy over the rough ways of life. But we need not adopt either quietism or a "modified form of Buddhism," as Dr. Kiernan suggests, to achieve this desirable end. It would not be possible for any great number of Englishmen to extinguish emotion, and in the words of Molinos, "die to themselves and their senses." Soon enough will come to the most active of us, even to "those who have warmed both hands before the fire of life," the "years that bring the philosophic mind." It is not given to any of us to anticipate them.

It is singular that the *British Medical Journal* should fail to recognize the difference between the savage and the highest turns upon the control of undue emotionalism. Indeed, the language just cited about *educating* the emotions is my own plea, otherwise expressed, not for the suppression of emotion but for its control. Unrestrained emotion is not an evidence of civilization but of savagery. The *British Medical Journal* ignores the distinction between intellectual stir and emotionalism. Whatever the English-speaking races have accomplished is due to their suppression of undue emotionalism. To this suppression of undue emotionalism, with the intellectual and physical vigor consequent on the avoidance of exhaustion which emotional excess entails, is due the satisfaction which Tennyson expresses in the lines quoted. Fifty years of European intellectual life is better everyway than a cycle of the unrestrained emotional life of the savage. This, however, is a sociological rather than a therapeutic question, and so far as the latter stand-point is concerned, my critic has, misunderstandingly, adduced abundant additional evidence in favor of my recommendation.

CIRCULAR INSANITY.

A CONTRIBUTION TO THE STUDY OF THE AFFECTION.—REPORT OF A CASE.

By THEODORE DILLER, M. D., Danville, Pa.,

Assistant Physician, State Hospital for the Insane.

WHILE circular insanity, attention to which was first directed by French alienists, who called it *foile circularie*, is now generally recognized and classified by systematic writers on mental diseases, yet reports of single cases are rather few in number. I therefore trust that the case I am about to record may be of interest as well as of some assistance in forming a correct idea of this interesting form of insanity.

Spitzka* believes, with Krafft-Ebing, that periodical insanity, of which he regards circular insanity as a subdivision, to be a manifestation of an hereditary or acquired vice of the constitution—usually the former. For this reason, as in monomania and epileptic insanity, the prognosis is bad. Simple periodic insanity he defines to be an alternation of mental disturbance (usually maniacal excitement) with comparative sanity, while the circular form of periodical insanity is defined to be "Alternation of mania and melancholia in regular recurring cycles."

Spitzka's general definition for periodical insanity, under which he includes simple periodic insanity and circular insanity, is, however, imperfect or inconsistent, as, in it, he declares the period or periods of mental disorder to be separated by states of apparent mental soundness; while in speaking of the subdivision, circular insanity, under the same head, he states that in some cases the

* Manual of Insanity, 2nd Ed., page 267.

melancholic and maniacal states follow or alternate with each other, but does not provide for the lucid interval. His general description of circular insanity, however, corresponds, in the main, with the ideas of others who have written upon the subject.

A typical case, to me, would be where the three mental states, excitement, depression and comparative sanity, each lasted about the same length of time,—the melancholia and excitement of one cycle being of about the same intensity as that of preceding or succeeding cycles; and where the states in each cycle always came in the same order, or at least where one cycle (consisting of the three states) was the type of many others as regards duration and character of each of the three states. But as a matter of fact the cycle varies greatly—it may be completed in three days, as in a case related by Blanford*—depression one day, excitement the next and insanity on the third; on the other hand, it may take a year, or even much longer to complete it. The excitement and depression may be mild or intense, even in the same case, comparing one cycle with another; the duration of the states of one cycle as compared with another, even in the same individual, may also vary greatly. The state of apparent mental soundness may be wanting altogether or seen only very briefly, as a transitional stage from melancholia to mania, or *vice versa.* Given a case where the three states are observed in a cycle, these may follow each other in a reverse order in one cycle as compared with another, or indeed the three conditions may alternate in such an irregular and unsystematic way that it is difficult or impossible to separate the so-called cycles. The only essential features then, in a case of circular insanity, is *the regular or irregular recurrence of excitement, depression and apparent sanity, or of the first two of these states only.* I wish to lay stress upon this definition, as only by its acceptance can the case I am about to relate be called one of circular insanity.

* Insanity and Its Treatment, page 175.

Hattie B——, single; admitted to this hospital April 30, 1879, at the age of 22 (present age 33). She is a native of Pennsylvania; daughter of a farmer. Medical certificate which accompanied her makes the following statements:

Mother died of consumption about eleven years ago; grandmother was nervous and hysterical. Patient is intelligent, educated, and is regarded by her friends as being of a pleasant, agreeable disposition. She talks incoherently at times; "*has had changes affecting the mind, at uncertain times, for the past seven years.*" A year ago fell backward out of a wagon, but did not appear to suffer any particular inconvenience from the accident. Her present manifestation of insanity has existed about five weeks.

May 10, 1879.—*Physical Condition:* A blonde; good figure; medium height; apparently enjoying good physical health.

Mental Condition: Countenance expressionless; apparently understands questions, as she will, at times, make intelligent replies, but as a rule she is mute, even when interrogated.

May 26. No improvement.

June 17. After a few days' increasing abnormal vivacity she became quite garrulous, obscene and profane and very careless about her dress; destroyed clothing; removed to a refractory ward.

June 24. Becoming calmer and relapsing into her former condition of apathy and indifference to her surroundings, she was returned to a quieter ward. Does not move around or engage in conversation.

June 28. Violently excited; noisy both day and night.

July 13. Again in condition of depression similar to that noted June 24th.

July 23. Again excited.

August 29. Excitement has subsided and she is again listless, indifferent and apathetic.

October 15. Gradually growing brighter, nearing her normal condition. *Discharged.*

Soon after leaving hospital the patient married.

April 26, 1883. *Readmitted*, with the statement of having remained comparatively well for a little longer than a year after her discharge, when she again began to have "slight attacks;" these have increased in severity up to

the present time. For some days prior to admission she had been excited, boisterous and violent.

June 25. Continued in condition of maniacal excitement above noted up to this date, when there was noted a sudden change to comparative sanity.

July 1. Relapse during the night to her former condition of excitement.

July 19. Quiet; needs no special care or watching.

August 2—27, September 21. Still quiet and apparently in her normal mental health.

September 22. Without any preliminary symptoms, she suddenly relapsed during the night into a condition of violence and excitement. She is to-day noisy, profane and destructive.

September 25. Quiet and well-conducted.

October 30. Quiet since date of last note.

November 18. Has become apathetic and oblivious to surroundings; is in a condition of stupor or depression resembling dementia.

November 20. Noisy; shows symptoms of ordinary acute mania.

November 28. Rational; apparently in normal mental condition. Has rather a sad expression, probably due to her appreciation of her condition.

January 6. Still quiet; apparently in normal condition.

January 7. Owing to receipt of a letter from home, or at least coincident with it, symptoms of acute excitement are exhibited to-day.

January 8. Resumed her quiet manner to-day.

January 22. No change since date of last note. *Discharged* at request of husband.

July 25, 1889. *Readmitted*, with symptoms of acute excitement, which have existed for the past two weeks. Her husband states that she has had four spells of mental derangement since she was discharged in 1884. These "spells" were always coincident with menstrual periods. (?)

Physical Condition.—Patient is quite stout and plethoric,—of a sanguine temperament. Digestive and circulatory apparatus apparently normal.

Assigned to a refractory ward.

July 27. Continued to be noisy and violent for about forty-eight hours after admission, at the end of which time she suddenly quieted down. The subsidence of the

excitement was coincident with an attack of mild diarrhea. Talks rationally to-day; is a pleasant conversationalist; speaks of events in history of her past life, showing an excellent memory for both long past and recent occurrences.

August 30. Violent and excited. The condition came on suddenly, coincident with subsidence of diarrhea above noted.

September 14. Sudden and complete change in demeanor, the metamorphosis taking place in the space of about two days. She is now in a state of languor, muscular relaxation and evident great mental depression. Face lacks all animation; will not engage in conversation. Occasionally makes remarks in monosyllables.

October 21. Rather gradually (in the course of three days) wakened from state of depression mentioned in last note. To-day is neat and bright in appearance and modest in bearing; shows evidence of considerable intelligence and education. In a convalescent ward.

November 14. Three or four days ago began to lose animation, interest in surroundings and care in dress. This retrograde change has continued up to date. She is now in condition of stupor or depression similar to that noted September 14th.

December 15. Excited and violent, but in less degree than upon former occasions.

December 23. Quiet; in condition of depression and apathy, which is, however, not nearly so pronounced as upon former occasions when she was depressed, *e. g.*, that noted November 14th and September 14th. Has some regard for personal appearances, but does not move about. Will answer questions when strongly urged. Shows retention of memory and an appreciation of surroundings.

February 21, 1890. Remained in condition last noted up to yesterday, when she began to get restless and uneasy, and this rapidly progressed to actual excitement. To-day she is violent, boisterous and destructive.

March 3. Condition of excitement above noted continues unabated. Patient is seldom incoherent; usually gives relevant answers to questions, but cannot concentrate her mind on one train of thought for longer than a minute or two; highly mischievous and destructive.

To summarize: Our patient, now thirty-three years of age, has been insane eighteen years—since she was fifteen

years old. She has been admitted to this hospital three times. The first time, May 2, 1879; the second time, April 26, 1883; the third time, July 25, 1889. Her first residence in the hospital extended over a period of five months; the second, over a period of nine months; the third residence, up to the present time, amounts to eight months.

Her mental condition during the three periods she has resided here may, for convenient reference, be tabulated as follows:

First Residence in Hospital.

1879.		1879.	
May 2.	Melancholic.....6 weeks.	July 23.	Maniacal.....5 weeks.
June 17.	Maniacal.....7 days.	Aug. 29.	Melancholic, gradually merging into normal, 6 weeks.
" 24.	Melancholic.....4 days.	Oct. 15.	*Discharged*—normal.
" 28.	Maniacal.....15 days.		
July 13.	Melancholic.....10 days.		

Second Residence in Hospital.

1883.		1883.	
April 26.	Maniacal.....2 months.	Nov. 18.	Melancholic.....2 days.
June 25.	Sane.....1 week.	" 20.	Maniacal.....8 days.
July 1.	Maniacal .....18 days.	" 28.	Sane.....6 weeks.
July 19.	Melancholic, going into sanity..... 1 mo.	1884.	
		Jan. 7.	Excited.....1 day.
Aug. 20 to Sept. 21.	Sane, 2 mos.	" 8.	Sane..... .....14 days.
Sept. 22.	Maniacal.....3 days.	" 22.	Sane. *Discharg d.*
Sept. 25.	Sane.....7 weeks.		

Third Residence in Hospital.

1889.		1889.	
July 11.	Maniacal.....16 days.	Dec. 15.	Maniacal.....8 days.
" 27.	Melancholic.....3 days.	" 23.	Melancholic.....7 days.
" 30.	Maniacal.....6 weeks.	1890.	
Sept. 14.	Melancholic.....5 weeks.	Feb. 20.	Maniacal ....2 weeks.
Oct. 21.	Sane.....3 weeks.	Mar. 15.	Maniacal.
Nov. 10.	Melancholic.....3 weeks.		

We have vague and indefinite reports of various "attacks" occurring during the time intervening between her first discharge and second admission, and also between second discharge and third admission. I think

it is likely that during these intervals she enjoyed some periods of sanity of considerable length, for we have the history of her marriage, which took place between the first and second admissions to the hospital, and the statement of her husband that she was in normal condition for one year just following the first discharge. I believe, too, that her attacks of maniacal excitement occurring between the periods of residence here, must have been of considerable less intensity than those observed here, or it would have been impossible to have kept her at home, and she would have been brought back to the hospital.

Now let us see what lessons can be drawn from this case. The first, perhaps, to consider ought to be the practical one. I thing the correct diagnosis or prognosis of this case, seen only in her excited or depressed condition in the hospital, would be impossible, even by the most acute alienist, were her previous history unknown. The diagnosis in cases like this can only be made after an acquaintance with the previous history of the patient, or after he has been under observation long enough to exhibit the various changes. Great care and discretion should be observed in giving a prognosis in cases of what seem to be ordinary acute mania or melancholia, when admitted to a hospital.

A peculiar and very interesting feature in the history of our patient is the fact that during her first residence here there were no periods of apparent sanity, melancholia and mania succeeding each other without the intervention of any lucid intervals. During her second residence here, three maniacal and rational periods alternated with each other, as in simple periodic insanity, before a melancholic period occurred. It is only during the third—her present residence, that anything like a *cycle*, comprising the three states, can be discerned. Perhaps it is not uncommon for recurrent or simple periodic insanity to become circular (more or less typical) by a process of evolution. Observations on this

point, in a number of cases, would be of considerable interest.

A noteworthy feature in the case of our patient is the almost entire absence of the element of dementia,—certainly rare in cases of insanity of eighteen years' standing, but which I believe to be not uncommon in this curious form of mental disease. In fact, on the contrary, it is considered by some to be a distinguishing feature of the disease.

Another point of interest in the case is the character of the maniacal excitement. This differs from that of ordinary acute mania in several particulars. While there is some incoherence in speech, this feature is not so marked as in simple mania. The propensity for wanton mischief-making in cases of acute mania, is well known; but our patient in this particular excels any case of acute mania I have ever seen, her discernment and perception being remarkably quick and active. She is, when excited, ever on the alert to snatch a book or paper from the hand or pocket, upset a bucket of water, or in many other ways, readily imagined, seek to annoy the physician and attendants.

Circular insanity and simple periodic insanity as seen in cases in this hospital are always of long duration. There is a case (female) of simple periodic insanity here, in which the disease is of many years' standing. Extremely violent, maniacal excitement and apparent sanity have, during several years she has been here, alternated with each other with remarkable regularity, each condition lasting just about three weeks.

There is another case (male) of circular insanity here, which was admitted in 1873, at the age of forty-five, with the history of having been insane twenty years before admission. So he is now sixty-two years old and has been insane thirty-seven years, more than half his life. The cycles, comprising the three conditions, excitement, depression and apparent sanity, are well marked, requiring about a year for their completion. This man

was discharged twice, but each time remained away from the hospital only a very short time. There is now a considerable degree of dementia in his case.

Of 2,300 pauper insane examined by Spitzka, it was estimated by him that about four per cent. of the number were cases of circular insanity. I think there is not quite so large a percentage among the 900 patients in this hospital.

Neuric and Electric Forces.

By John Schilling, M. D., Millstadt, Illinois.

OUR present knowledge of the relations of mind and body being so unsatisfactory, any endeavor to clear up the subject is at least justifiable.

Nature is not a personal nor any other entity with moral responsibility, as it is sometimes regarded. We consider nature the cause whenever our power of explanation falls short. Nature's purpose (after all a mere fact and not a purpose) is to display—firstly, the greatest amount of life, no matter whether by the most perfect or by the lowest forms in existence; and, secondly, the greatest variation of forms. Hence death is a necessity. Without destruction there could be no change. Nature, however, makes the best use of the perishing forms. These furnish food for the surviving. The higher forms often succumb to the less perfect. Perfection in our sense is not nature's aim. Tenacity of life—that is, when the individual is most advantageously adapted to the surrounding conditions—is the principle we see expressed in all actions of nature. That so many germs and undeveloped forms disappear before they are ripened, is no useless waste. For it seems, in the struggle for life, nature has to reckon with so many and unfavorable circumstances, that she must trust greatly to chance. Of course there is really no chance existing; everything is necessity. Yet, as there is no such entity to foresee, to conceive and to guide the events to come, nature—the imagined creator—has to take the chances into account. Many must die that a few may live. Thus, we find apparently a useless production. However, let us abstract our personality, our human views; let us recognize nature's aims and the difficulties she has to contend with, and we must admit that there is truly no wasting of life.

There are certain laws of nature the rationality of whose existence we are incapable of recognizing, which nevertheless we are compelled to regard as facts. We do not comprehend the reason why there is life at all, and why only under certain circumstances—however we know it to be a fact. We may here properly define what is meant by natural law. Law, in its abstract signification, is the production of man's mind. That great and all controlling law of inertia is merely a fact in nature and has nothing to do with that importance and superiority man usually assigns to it. We call it law; we believe it a regulating influence given by God, nature or some other imagined entity. We are too narrow—limited in our ideas—and too firmly attached to the doctrines of our forefathers, to conceive of law as a mere fact, depending upon nothing at all. Ingersoll says rightly: "Water runs always down hill, not because there is a law behind it, law does not cause the phenomenon, but the latter causes the idea of law to exist in our mind. * * * * But that idea is on this side of the fact."

There is at least no pre-arrangement, no lawgiver; but phenomena are facts, because they happen to be so. Nature herself is no rational or volitional entity; she is exactly the opposite to the prevailing idea of a God.

Life in general is motion. Life of a being is the harmonious grouping together of material particles, which continuously, one after another, enter the organic structure, and after having served nature's purpose, which is, let us remember, to constitute phenomena of life, leave it again. Individual life thus is an uninterrupted change of location of substantial particles. Matter is living. Can we imagine matter without life, without motion? *i. e.*, can it ever be uninfluenced by force? What force actually is we cannot tell. We assert that cohesive force is the affinity of individual molecules to each other. But upon the question what the latter is, we answer with silence. Probably here we must stop our investigation and declare our inability to define force. Why is this? Because force and matter

are really but different names for one and the same night. Force is only a term of convenience, to express the amount of motion under given circumstances. It has no real existence, like matter. It is not necessary to prove this. We cannot understand that force or anything immaterial can influence matter. Anyone who wants to be mystified let him believe in force as an entity. To him who wants to know correctly the relation between effect and cause—who wants a clear and simple explanation of his surrounding—there is no intermediate substance—no force; there is merely matter in motion. Both are eternal.

Life or motion is then like a circle—no beginning, no end. Individuals die, generations perish, worlds and stars vanish, but still matter exists. And it exists under certain forms; hence it is necessarily subjected to form changes. The appearance under which it occurs now will pass away, only to have it assume another the next moment. Heat, one of the so-called forces, is vibration of molecules. Its intensity is due to the degree of rapidity of the vibrating particles. Hence we must suppose molecular motion, even should we go down to 1000° below zero. For there is still a possibility of a lower degree than 1,000° of a smaller or less rapid vibration. Stop a body in its motion and its temperature will rise; the visible motion has turned to the invisible of molecular vibration. On the other hand, can we conceive of force unless through the medium of matter? We cannot separate force from matter, because in fact there is but one identical existence. The materialist calls it matter, the spiritualist calls it force. We do not attempt to identify either, for we can only personify, and doing that we should again fall into those old errors which we intended to avoid here. Therefore we have determined this hypothesis: Matter exists, but it is in motion; force co-exists with matter. Now we may do away with the old idea of force and othe unknown quantities, and let us return to matter. Only of its existence we can conceive directly, and only of its form changes we can have a material knowledge. The word

material, in this signification here, best expresses our inability to treat of anything else but matter and its motion. However we shall continue to use such words as—force, nature, etc., but with the above modified meaning, and for convenience sake.

The life-duration of an individual is quite determined, if we exclude diseases and accidents, etc., which are, however, by no means the exception, but the rule. A fixed quantity of material particles will undergo the metamorphoses of life. Each separate particle will have assisted in constituting the organism for a certain length of time. This time is definite as far as a particle will be present, till it has sufficed its purpose, not longer nor shorter. This purpose is to form a tissue-cell, and then do its respective work. Natural processes do not permit it to rest, but force it soon to be moved and finally to be expelled. For stability is death, and mobility alone is life. In other words, a fixed amount of carbon, hydrogen, oxygen, nitrogen, etc., shall have gone through the organic frame, and each atom shall have been present in it for a quite distinct length of time. Yet there is no providential consciousness at the bottom of this fact. A being then would be in a healthy or normal condition, if this law had been observed in regard to both the number of molecules and the time of their presence in the body. That is, if all circumstances had been favorable. The offspring would also become like and live as long as the parent, and like offspring would continue to be alike under the same conditions. The intrinsic or life-force in like beings would be equal if the extrinsic forces influencing them were the same. A change in circumstances produces in direct ratio a change in life, in its length and its manners. In the same degree with the external the internal conditions alter. And even circumstances are determined, one follows the preceding necessarily so as it does, and not in any other way. We may call that fate or chance: it is all the same, the facts remain unaltered, no matter how we view them. Such laws are, however, only ideal, that is,

circumstances are seldom all favorable. For phenomena are subjected to so various influences that the rationality of these rules is hardly to be recognized. Yes, it seems to be nature's purpose (from a human view of course) to have never created alike, that is, to have all circumstances never repeated alike. From the production of individuals to different families, to distinct species, etc., there is an infinite variety possible in nature. This blind and unreasoning creation is proof again of the non-existence of such an all-ruling entity as a God or any other self-willed force. Nature, so to speak, seems ever to change in order to find out which form of life will fit best to its surroundings. But in reality the latter, the external conditions, cause a change in forms.

Upon such principles, as upon foundations, we build our theories. A theory always succeeds the science, which is a collection of facts. It is always subsequent to observation, it never precedes. Theories need not to be absolutely true if they are only relatively so, that is, in coincidence with facts and our reason. All our sciences and explanations are human views; they are on our side of the facts. So long as they satisfy us they are all right. The importance of a theory on nerve-force is obvious. We should have at least some more definite and tangible idea of its actions than we had heretofore. We should draw nerve-force out of the scope of uncertainty and abstraction, into the reach of our comprehension, as far as that is possible. Although we cannot understand the ultimate maxims of nature (we may as well say because there are none) we are at least always capable to point out still more precise ways of her actions. That gives us a feeling of being much nearer to the knowledge of truth. A theory, accordingly, is to be regarded as a means of approaching truth, always open to contradiction and amendment. It is to connect together a number of ascertained but isolated facts, so as to give more coherence to our knowledge, and greater facility for surveying these facts and of commending their use.

We know the dependency and the intimate connection of the different functions of the human body to each other, and now we come to ask: What connects the different organs, the distant parts of the body and establishes harmony in their actions? The nervous substance is the material; it is both the transmitting and the directing medium of nerve-force. It influences all functions and processes of life. We may say in general, the cerebro-spinal system presides over phenomena of animal life, over sensation and motion, and the sympathetic system over those of vegetable life, over growth and development. In fact, the essential action of both systems is the same. They cannot functionate separately. They are joined together anatomically at numerous places. Thus transmissions of impulses between them are very abundant and hence the difficulty of making accurate distinctions of their special offices by experiments. The theory which is advanced below will clear up many a fact, both in physiology and pathology, at present not well understood.

Nerve-force is thought to be intimately related to electricity; at least we are justified in calling it analogously, "Nervicity." Yes, the problem of the near future will be to prove that electricity and nervicity are identical, that the former need only influence animal matter to become nerve-force.

To us there is no doubt of their identity. Their only distinction is due to the different circumstances under which they manifest themselves. Nerve-force has its field of activity within the animal tissue, particularly within the nervous substance. It travels through nerve-fibers and lodges in nerve-cells, hence it occupies space. It is isolated within the nervous system by material provisions in order to prevent its transfusion. Thus the axis-cylinder is surrounded by the white substance of Swan. These conditions are clear, indisputable proofs that nervicity is matter, at least as far as we believe electricity to be matter. It is evident from the difficulty to be observed by our senses that this matter is very subtle, unimaginably

fine, but still it is a substance. Nerve-force moves with much less rapidity than electricity, and this must be so to preserve and perfect life. By means of evolution the nervous tissue, or the protoplasm in general, has become so modified as to conduct electricity or nervicity at the slower rate of twenty to ninety meters per second. A special molecular arrangement of the protoplasm, or a peculiar atomic composition of its molecules, may account for this.

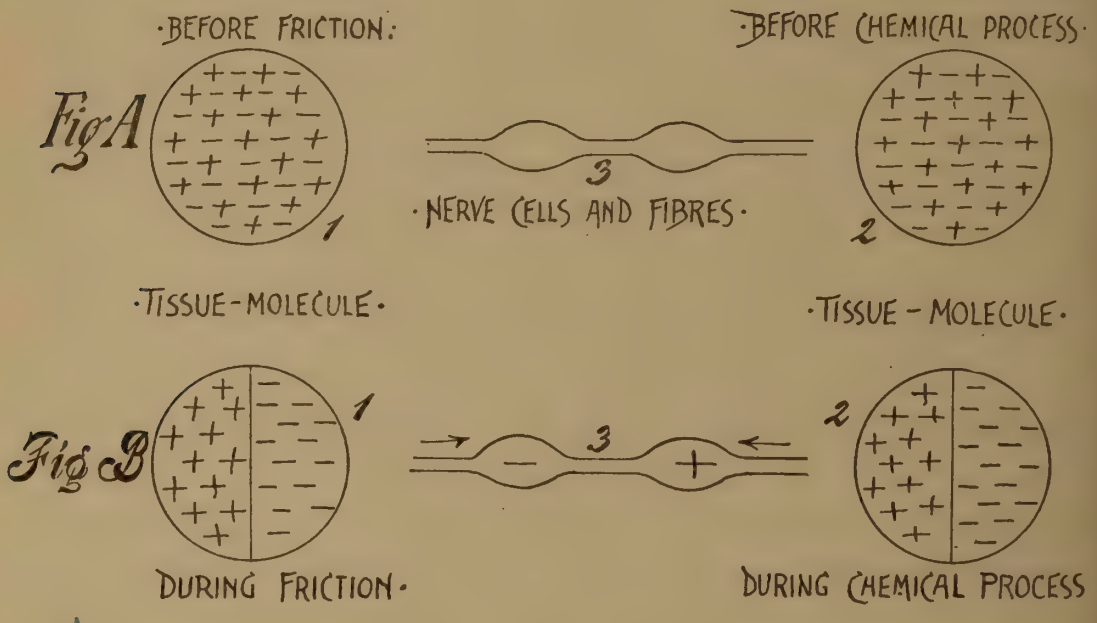
Nervicity (this term signifies electricity within the animal frame, and it will be henceforth expressed briefly by the letter N.) then, is a fine ether-like matter. It permeates all parts of our body, and adheres to the molecules of all the tissues, as electricity is supposed to adhere, in a latent state, to all molecules of matter. N., too, is composed of two parts, called positive and negative, which possess a great affinity to each other and are not at rest until this affinity is satisfied by their union. And like electricity, too, positive N. is repulsed by positive, and negative by negative N. Thus we define nerve-force as mutual affinity of positive and negative N. This definition is just as correct as our present theory on electricity. At least, with it we are now able to explain any vital phenomenon. In a state of latency or union, both positive and negative N. adhere to all molecules in our body and outside of it to all material particles as electricity. N., then, reaches the system with food, air, *i. e.*, by contact in this inert condition, and leaves it in the same way. As long as the ingested or inhaled particles are chemically inactive, this latent state of N., or here still electricity, is not disturbed. But as soon as chemical changes manifest themselves and generate atomic or molecular motions, the adhering positive and negative N. become separated. Again, as long as the molecules of the animal frame are physically at rest, *i. e.*, not put in motion by extrinsic or physical, in contradistinction to intrinsic or chemical influences, positive and negative N. are still united. But as soon as a particle is moved by friction with the surrounding particles, either

in or outside of the body, the N. becomes separated into positive and negative; their affinity is overcome for the moment by both a physical and a chemical process. That is the separation of positive and negative N., which we shall term also generation of N. Their re-union, through nerves in nerve-cells and muscle-cells, constitute vital phenomena and effect subsequently disintegration of the tissues and heat. In other words, the union of positive and negative N. causes again physical and chemical processes. This change of energies, transmuted motions and vibrations, from extrinsic into intrinsic, and *vice versa*, is life.

We call the N. generated by physical activities, physical N., and that excited by chemical processes, chemical N., according to the respective causes of its separation in positive and negative. But they are the same matter. The sole difference between them consists in their different manner of generation. To repeat: Similar to the production of electricity, the force of mutual attraction between positive and negative N. is antagonized and temporarily suppressed by both physical and chemical forces, and the union of positive and negative N., which may also be called a current of N., or a nervical current, calls into existence again physical and chemical processes. The relation between these activities is that of cause and effect.

The nervous system is the machine through and in which the more complicated phenomena of animal life appear. During a physical process, as friction for instance, the N. (physical N.) is separated into positive and negative; their mutual affinity is suppressed during that time. As soon as this obstruction ceases to exist re-union would take place on the spot and no perceptible phenomenon be produced, if it was not for that peculiar apparatus, the nervous system. Again the chemical changes of the organic constituents, the disintegrations and compositions that are constantly going on in our body, disunite N. (chemical N.) into positive and negative. They would,

likewise, re combine on the spot as soon as the chemical process is over, if the nervous system did not interfere. Let us look now at this organic apparatus. It is as interesting as it is intricate. In general it consists of nerve-fibers and of nerve-cells. The axis-cylinder of the former coalesces with the contents of the latter, to form an uninterrupted homogeneous substance, the communication of all the tissues. This matter has the absolute property of conducting N., being created specially for that purpose by gradual adaptation (evolution). Moreover, this homogeneous chain is protected against the transfusion of the nervicities. The fibers are insulated by the white substance of Swan and the cells by their cell-walls and by the neuroglia in which they are imbedded.



In the upper figure A, on molecules 1 and 2, the N. is in equilibrium, the positive and negative are at rest. In the lower figure B, however, the affinity of positive and negative of both physical N. at molecule 1 and chemical N. at molecule 2, is overcome by the respective processes. And there is no impediment to the union of the negative N. from molecule 1 and of the positive N. from molecule 2. On the contrary, their union is much favored as the finest conductor, the nervous substance is between

them. We can conceive now, why N., once generated, is readily taken up by the peripheral ends of the nerves—because there is always the same amount of the opposite N., opposite in regard to positive and negative, engendered at some other place in the body and the nerve tissue intervening as conductor, for the chemical agencies and the physical influences of the animal body stand in direct relation to each other. It is of no importance to assert which part of the physical N., whether the positive or the negative is taken up by some of the nerve ends, if we only agree that the antipodal part of the chemical N. is taken up by some other of the nerve terminations.

The nerve end organs, fibers and cells are to be regarded as natural electrical batteries. They are charged with N. It accumulates in them to produce the various phenomena of sensation, motion, etc., for which a greater or less amount of N. is wanted. Some of the cells are continuous with afferent, others with efferent nerve-fibers. Most of them are connected among themselves, but some are isolated. The cells of the spinal cord, accordingly, are joined to those of the brain by ascending and descending, and to those of the sympathetic ganglia, by departing and returning filaments. The nerve-fibers serve also for the purpose of reserving N., as well as the cells. In looking at sections of the gray matter under the microscope, we seldom find such regular excito-motor or reflex-arcs, as we have drawn in the foregoing figure. We see hardly ever regularity at all. Generally, however, cells and fibers are joined together; but, if isolated, they are at least tapering towards each other.

Both systems, the cerebro-spinal and the sympathetic, possess afferent as well as efferent nerve-fibers. The afferent of the former system are the sensory, and the efferent are the motor nerves. Of the sympathetic system we call the afferent vaso-sensory, and the efferent, vaso-motor nerves. Both systems are also connected with each other by two distinct sets of fibers. In one set the nervical current is from the cerebro-spinal to the

sympathetic; in the other the current is reversed. We must determine now what nerves are afferent and which of them efferent. We are able to do so with ease and accuracy in the cerebro-spinal system for obvious reasons. To the afferent fibers of that system belong all nerves, sensory in general and special, viz., nerves distributed to surfaces that are either subject to contact with external substances, or constantly with parts pertaining to the body. The efferent fibers are the motor nerves, through which the nervical current is transmitted to the striated muscular tissue. Both afferent and efferent nerves are usually connected to a bundle nearly as far as to their final ramification. In the sympathetic system we suppose this to be likewise the case. But here the afferent fibers do not convey such distinctly perceptible impressions to the sensorium of chemical actions, to the cells of the ganglia. And the impulses in the efferent nerves do not induce such clearly recognizable contractions of muscular structures of the plain fiber cell. Taking all this in consideration, we may easily account for the difficulty and insufficiency of experimental investigation with regard to the ganglionic system. The special functions of its sensory and motor nerves must be explained rather by comparison and analogy to the well-known cerebro-spinal system.

Should there not exist any nervous substance, as is the case with the amœba or the like low organisms, the separated positive and negative N. re-combines on the spot of generation, or anywhere in the protoplasm. It is not conducted in manifold and definite directions, and, therefore, it induces only such limited life signs as we see in these lowest organic forms. There is no necessity for transmitting N. to nerve cells or other complicated apparatuses. *A priori*, nervical currents are absolutely essential to vital phenomena, and we must suppose nerve-force and life-force to be identical. Accordingly, nerve-force cannot originate solely within the nervous system, but everywhere throughout the animal body; for, although we

do not find nerve structures in simple cell animalcules, yet nobody will claim that the latter are lifeless. N. is generated in each tissue-particle in a direct quantitative proportion to the amount of physical and chemical influences, molecular and atomic motions, acting in that particle.

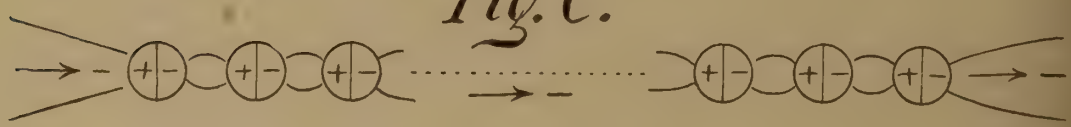
Let us recapitulate now the principal causes that generate N. and the locations where this occurs. There are two general aspects: Firstly, physical events, such as touch, sound, light, heat, etc., separate positive and negative N. This takes place evidently more or less whereever there is friction or molecular vibration, especially, upon the external surface of the animal, which comes in contact with surrounding objects. Then, also, over the surface of the alimentary canal, from mouth to anus; over the respiratory membrane, from the larynx to the smallest air cells; upon the surface of the urinary and reproductive organs; further on, in shutsacks enclosing internal organs, as pericardium, pleura, peritoneum, meninges, etc.; in synovial membranes of joints, etc.; in the circulatory apparatus in heart and vessels; and lastly, but not least, in the sheaths of tendon and muscles. All these parts are abundantly supplied with afferent nerves, sensory of the cerebro-spinal system. Friction occurs to a varying extent throughout the entire animal frame, and under the form of heat it is ever constant. Now, it is but rational to suppose that all, or at least most of the N. generated in this way (physical N.) is taken up by the sensory fibers in order to produce vital activity. Should there not be any conducting filaments in immediate proximity, the negative N. of one molecule will combine with the positive of the adjacent, and the now remaining negative with the positive of the next molecule, and so on, till the last remaining negative N. reaches the commencement of the afferent nerve-fiber. Figure C represents a diagram of such a conduction of N. through tissue molecules.

Secondly, chemical changes suppress momentarily the

mutual affinity between positive and negative N. This takes place, likewise, throughout the whole animal body in the capillary blood-vessels or in the tissues very close to them. Especially, in nervous and muscular structures are atomic movements most active, because of the very frequent union of the two antipodals, positive and negative N. Here, too, should the afferent nerve, vaso-sensory of the sympathetic system, be remote from the place where the chemical process is going on, we can well account for the absorption of the positive N. by the way shown in Figure C. Again, we must suppose that nearly all the chemical N. is taken up by the vaso-sensory fibers, to also help in effecting signs of life. The only exception furnishes the muscular tissue, which will become intelligible to us later on.

A few words about the chemistry of the protoplasm or its retrogressive changes. The chemical composition of

Fig. C.

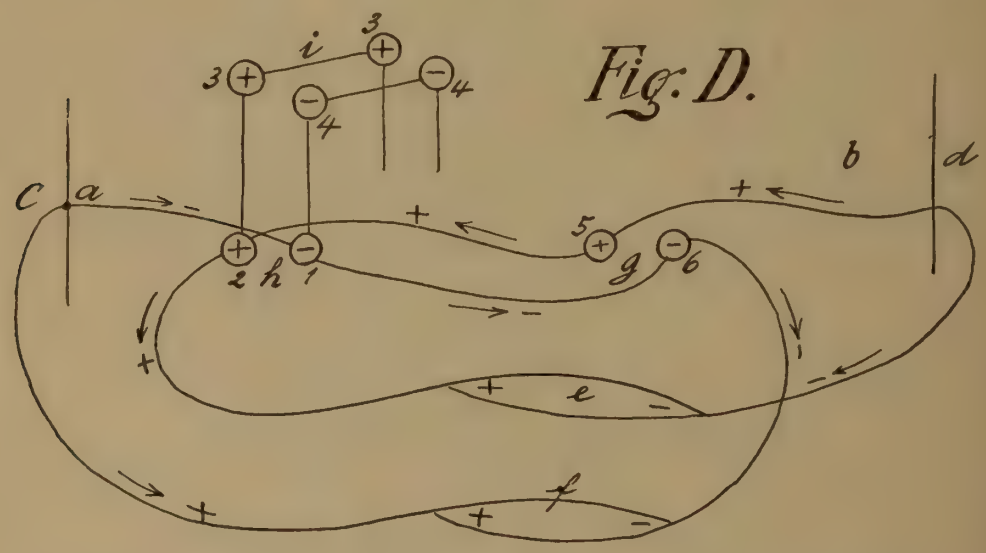


the organic tissue-molecule is so very complex for the reason that its disintegration, or any interchange of its atoms, should generate a greater amount of N. than simpler compounds. Let us here also recall to mind that any atomic motion, either to form new tissues or to destroy old ones, produces chemical N., and each respective organic principle, whether proximate or not, is formed from a lower stage under the influence of a weak but constant current of positive and negative N., as seen in Figure C. We shall quote from Foster: "The animal protoplasm is as constructive as the vegetable protoplasm, the difference between the two being that the former, unlike the latter, is as destructive as it is constructive, and therefore requires to be ('because it is'), continually fed with ready constructed material."

Union of positive with negative N., occurring in the cells of the nervous system, constitute various psychical and mental states. Union of positive and negative of chemical N. occurs mainly in the striated muscular fiber, effecting its contraction, and finally, union of positive and negative of physical N. causes usually the contraction of the plain muscular fiber or fiber-cell. But the combination of the antipodal nervicities induces every time molecular motions, heat, etc., physical phenomena and atomic motions, tissue disintegration or chemical processes. In order to compensate this waste, the flow of blood is comparatively greatest to parts where union of positive and negative N. is most frequent, *i. e.*, in nervous and muscular structures. Let us also return for a few moments to the conduction of N. from molecule to molecule and its effects. It is obvious that this transmission of positive and negative N., as in Figure C, cannot take place without producing, in due time, chemical changes. A weak but uniform current, having lasted some definite time, will decompose a tissue molecule. If the current is intensified the same result will take place in a shorter time. For the degree of chemical affinity corresponds to a certain proportionate amount of nerve-force, mutual attraction of positive and negative N., and not until this amount has operated upon the organic molecule, will the affinity of its atoms be overcome and the molecule decompose. However, only to make way for newly formed compounds, and that goes on until death interrupts their continuous and normal metabolism. This conduction of N. from molecule to molecule causes also physical processes, heat, etc., in a likewise definite proportion. In fact, union of positive with negative N. and a nervical current cannot be differentiated by their effects. Thus we have seen N. is acting, not upon nerves and muscles alone, but upon all animal tissues, and preserving by such means their vitality, both in a physical and a chemical respect.

In the following diagram, Figure D, we have outlined

the general direction of the nervical currents through the body. The commencement of the sensory nerves is represented at (*a*). Here, one part of the N., generated by physical events, is conducted upwards through these afferent fibers. We call this part the negative N., of course, only to distinguish it by a name ; it could be just as well the positive part. Through the ganglion on the posterior roots, the negative N. reaches cell (1) in the posterior columns of the cord (*h*), charging them in a manner similar to electrical batteries. From there, after having supplied by means of the ascending spinal fibers



numerous cells (3) of the brain (*i*), the current goes through some of the connections between the cerebro-spinal and sympathetic systems to cells (6) of the latter system (*g*). The negative N. is stored up there in the same way, and leaves these cells through the vasomotor nerves to the plain muscular fiber (*f*). Here it unites with the positive N. coming from (*c*), of which it was originally separated, and thus closing the circuit, effects the contraction of the fiber-cells (*f*). Such is the general current of physical N. It is a constant current, as we can readily conceive, for physical processes are always more or less operating on and in the tissues of our body. A certain degree of temperature is always present, and heat, vibration of molecules, is the ultimate physical event. The

more extensive these physical states are the greater is the current, and consequently, the more active are the chemical processes in the being. As in all other conditions, there is also a normal in temperature, about 98½° F. Too much above or below this is equally deleterious to the system. The tonicity of the plain muscular fiber in vessels, intestines, uterus, etc., is due to the constancy of this current of physical N. Stop it, and the fiber-cell loses its vitality; it will become flabby, without tone, as may be seen in the dead subject shortly before the myosin coagulates.

Further on, returning to Figure D at (*c*), we represent the beginning of one division of the sympathetic nerve-fibers, namely, the afferent. We have called them vaso-sensory nerves. Their ramification is, we have learned, in those parts where, or in whose proximity, chemical changes mainly take place, *i. e.*, in the walls of blood-vessels, glands, etc. To them, probably, belong those poles of the multipolar cells that are not connected to any other cells or fibers, but commence free in the neuroglia. By these afferent fibers, sensory nerves for chemical agencies, one part of the chemical N., generated by the various chemical processes, is taken up. Now, that part is of necessity, positive N., the antipodal to what enters the sensory nerves at (*a*). It is then transmitted to cells (5) in the sympathetic ganglia (*g*), and through some of the fibers connecting them with cells of the spinal cord (*h*) to the motor cells (2) in its anterior columns, charging them with positive N. From there, after having also filled cells (4) of the brain (*i*) by other ascending fibers, it is conducted through the motor nerves to the striated muscular tissue (*e*). Here it combines with the negative N. from (*d*) its former antipodal, and this union induces the contraction of the striated muscle-fiber, the precise manner of which will be shown at another place. Such is the second general current, the current of chemical N. It, too, is constant, as we may likewise easily comprehend, for chemical agencies are to a varying extent,

continuously influencing the animal molecules in digestion, assimilation, disintegration, etc. The greater the chemical activity is, the more chemical N. is going through this current, and consequently, the more active is the physical life, motion and heat. By the constancy of this second general current of N. we also well account for the tonicity of the striated muscles, which gives them that different appearance in the living and the dead body.

Besides the union of the antipodal nervicities in the muscles, it occurs also in the cells of both the sympathetic and cerebro-spinal system. This union in different parts of the nervous system represents different nervous phenomena, and their intensity depends on the difference in the amount, etc., of the combining nervicities or nervical currents. If they are increased, *i. e.*, physical and chemical activities intensified, psychical processes and muscular contractions increase likewise in the same proportion. Thus, two currents in opposite directions are continually traversing the animal frame, sometimes increasing in amount and producing more active life, at other times, diminishing and reducing life almost to inactivity, as in sleep or exhaustion. Thus, after a full meal, we are better disposed to endure muscular exertions and our mental faculties are brightened and the imagination is very productive. On the other hand, in starvation or other adynamic conditions, muscular and mental activities nearly cease. Again, excess of heat evolves too much N. and causes restlessness, etc. Extreme coldness generates too little N.; not enough to keep up the currents, and death from cold comes on gradually. Therefore, we see health wants also a norm in this respect. Either too much or too little N. in the currents is a damage to a healthy state of our body. Too great and too long a deviation from the normal nervical currents gives rise, sooner or later, to disease, *i. e.*, the tissues lose their normal character and subsequently functionate abnormally.

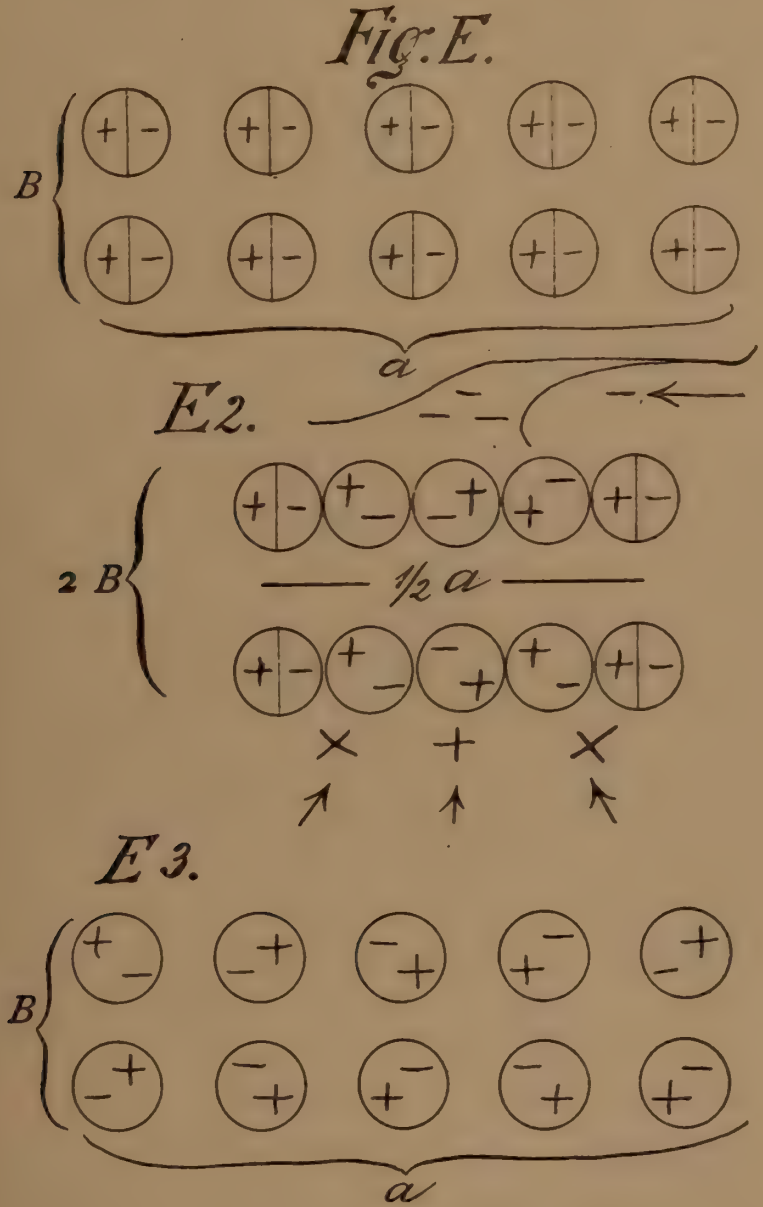
Motion.—Contraction of plasma or muscles gives rise

to motion. Contractility is the property of plasma in general and of muscular tissue in particular. If the former has no distinct form, that is, no distinct and resisting cell-wall, then movements will be irregular and planless. The more this mass of plasma becomes organized the more restrict and definite movements will result. The muscular tissues are hence but kinds of plasma, perfected to a greater or less degree. The contraction is caused by the union of positive and negative N., or a nervical current within the contractile structure. We explain this by a polarization of its molecules. In such simple cell-beings as the amœba, movements may occur in 'most any direction and are sluggish. There is no nervous and no muscular apparatus in them. Next we come to the capillary cells. They have less diversity of motion than simple plasma masses, but it is more pronounced. They have, likewise, no nerves. Next there is the plain muscular fiber or fiber-cell. It contracts in only one direction, and a nerve always conducts a nervic current to either one or more of them. Lastly, the striated muscular tissue is most perfect. Its contraction is, likewise, in only one direction, and it is quite regular and very striking, due to the peculiar molecular arrangement. Of course, every fiber posseses its own nerve. The structure and nerve supply of the cardiac fiber is intermediate to the last two fibers or muscle tissues. The movements of the amœba are irregular, for the polarization of its molecules takes place in irregular directions, and they are always the effect of local stimuli. Promiscuous chemical and physical processess polarize its tissue molecules, separate positive and negative N. to form the contractile force, and physical or chemical processes disturb this polarization again as stimuli (separated positive and negative N. uniting, produce the contraction). In the capillary cell, movements of shortening, flattening, or both together, occur. There are, of course, simple contractions in one or two directions, and distensions in others. The force and stimulus are likewise local and direct results of

physical or chemical agencies. After the irritation is over, *i. e.*, after the equilibrium of the nervicities is re-established and the cell molecules are depolarized, the cell will return to its usual appearance by means of its own elasticity. The latter property belongs also to non-vital objects and will not be explained here, although the plasma and all contractile tissues lose it with their vitality. Greater irregularities of motion in the capillary cell are prevented by the cell-wall, blood-pressure, etc.

In the plain muscular fiber union of positive and negative N. gives rise to a mere shortening and thickening. The fiber-cell assumes a more compact globular shape. The functionating of the plain muscular tissue results in contraction of tubes (arteries, intestines, etc.) and sack-like organs (bladder, uterus, etc.), due to the circular arrangement of the fibers. After the nervical current has subsided, the inherent elasticity of the fiber causes these vessels to regain their ordinary caliber and form. In this case only two movements are executed—contraction and relaxation. The direction is more limited, but the motion has greater regularity than either in the amœba or in the capillary cell. We shall represent now the *modus* of contraction in the fiber-cell by Figure E. In Figure E 1, its molecules have become polarized by the accumulation of positive N. on one side, and the negative N. on the other side. This is due to the retrogressive tissue-changes within the muscle-fiber, for instance, of sarcin into lactic acid, etc. At Figure E 2, a current of physical N. goes through the fiber, depolarizing its molecules and effecting by that, its contraction. The positive unites with the negative N., and at the same time, the molecules approach the center, or wherever the nerve enters the muscle-fiber. Of course, that shortens or contracts the fiber-cell. The cause or force in this phenomenon is the mutual attraction of the antipodal nervicities. Figure E 3 shows the condition after equalization is over, when the fiber has relaxed and its molecules have an equal share of both positive and negative N.

closely united. The length and width of the fiber are expressed by the letters (*a*) (*b*) and ($\frac{1}{2}a$,) (2 *b*) and again (*a*) and (*b*). The process so described is, however, going on all the time, which effects the tonicity of the fiber-cell, already spoken of before. And only variation in the intensity of the nervical current produces either con

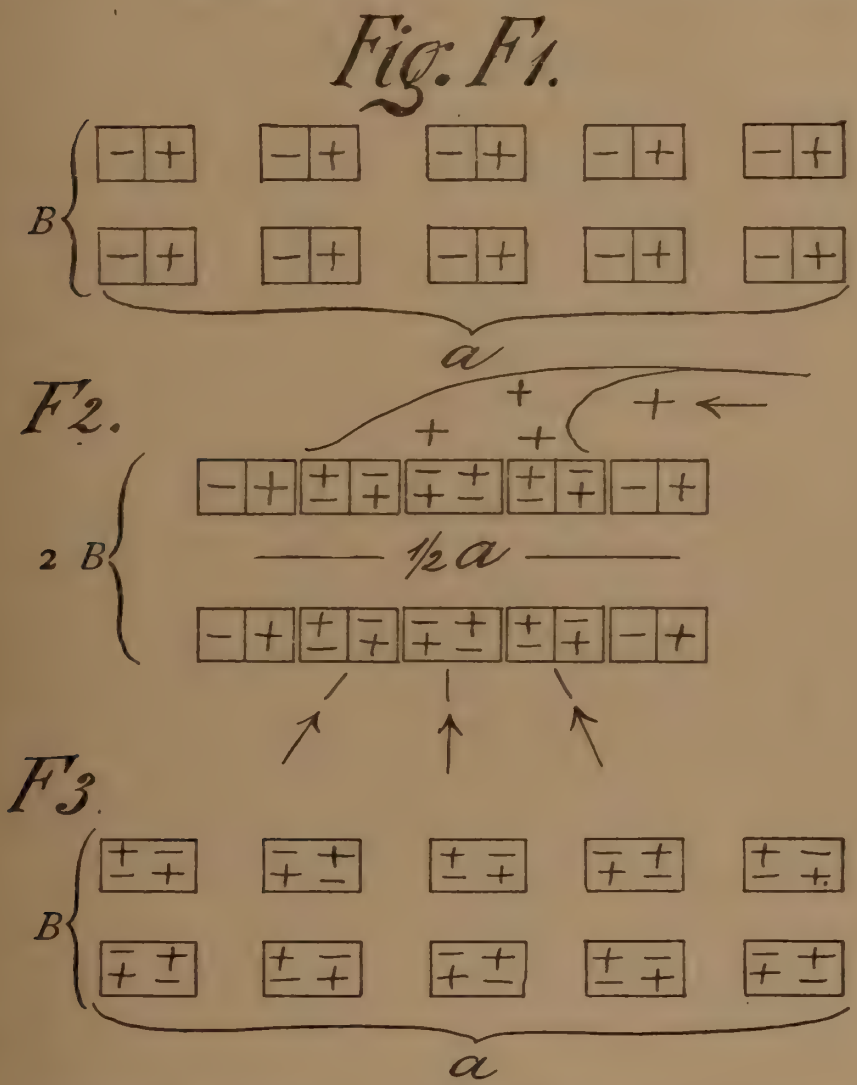


traction or relaxation. Any great variation does not occur here, hence the action of plain muscular tissue is rather sluggish. For the stimuli, generally chemical processes are gradual, at least, not so sudden and intense as a stimulus for the contraction of the striated fiber which is usually a physical process. The nerves of the

fiber-cell are the vasomotor fibers. They originate in the ganglia of the sympathetic system and conduct as motor force the negative N. of the sensory nerves, *vid.* Figure D. Their exact distribution has not yet been determined. Whether each fiber-cell has a nerve of its own or whether several of them are supplied with negative N. by one nerve fiber only, has no bearing on our explanation. We need but remember the conduction of N. by the tissue molecules in general, *vid.* Figure C, and consider that decisive and manifold actions of the so-called involuntary muscles are but little important, or even unnecessary.

The nerve for motion proper has its root in the cells of the anterior columns of the spinal cord, where it gets its supply of N. Each nerve-fiber terminates in one of the striated muscular fibers, the minute way of which is not yet quite settled. But it is sufficient for us to know that it ends in or about the middle of the muscle-fiber. The latter is constructed in such a manner, with its longitudinal and transverse striæ, as to bring the phenomenon of contractility to its highest perfection. Here, too, the motion is restricted to one direction, and what the fiber loses in length it gains in circumference. The contraction is also due to the common principle of polarization. Only that here the small columns or sarcous elements become polarized as a whole, and not each individual molecule, as in the preceding tissues or in the amœba. By this condition the contracted muscle can resist greater weights and display greater force. Figure F illustrates this process in the striated tissue. The columns are polarized and in a mutual state of tension, *i. e.*, each column is positive on one end and negative on the other (Figure F 1.) Now, a current of positive N. (the impulse or force) enters by the terminal plate and unites with the negative N. of the nearest columns. The positive N. of those becomes free and unites with the negative N. of the next columns, and so on (Figure F 2.) Whilst that takes place, the sarcous elements approach each

other and the fiber contracts. Afterwards, positive and negative N. are closely united on each molecule of the columns, and their state of tension is neutralized (Figure F 3.) And then elasticity again causes the relaxation of the muscle; (*a*) and (*b*) stand for its length and width. But, in reality, let us understand, this process of nervical equalizati on isgoing on constantly, and a column will



never be entirely neutral. They are continuously aiming to become so, but chemical changes always prevent it. Hence, the very marked tonicity of the striated fibers. Movements of a limb are effected by the contraction of one set of muscles gaining the ascendency over another. There is an increase of the nervical currents in the fibers of the first, and a relative decrease in the fibers of the second set.

As has been stated already, the N. consumed in a muscle's contraction is generated by the metabolic processes in the muscle itself. The metabolism, therefore, is in direct proportion to the use of the muscle. It is evident that the chemical N., which travels up the vasosensory nerves and goes down through the motor nerves as a motor impulse to start muscular contractions, *i. e.*, which makes the general current, as seen in Figure D., is but a small part of all the chemical N. in the body. The muscular force as such is inherent to the muscle-fiber or its plasma under the form of molecular polarization, due to its retrogressive tissue-changes. After some time the chemical N. becomes exhausted, for the chemical transformation in producing the polarization of the columns or molecules are held in check by the subsequent increase of physical events or heat. Each following contraction becomes weaker than the preceding, and finally they stop altogether, until through a pause of rest the renewal of the wasted muscular structures has taken place and they are ready again for new action. The growth of a muscle also keeps pace with its use. During every contraction physical N. is generated by the friction or heat. A part of this unites again on the spot in the muscle and dilates the capillaries. Another part travels up sensory nerves to increase the general blood-pressure, and to induce likewise what we call muscular sense. Thus during each relaxation the blood abounds in the muscle, and not only is the wasted material restored, but every time the compensation exceeds the loss a little; nature's ways to adapt herself to surrounding wants and purposes—or evolution.

Sensation.—In general we may say, sensation of a cell is a peculiar vibration of its molecules. In man it is a vibratory motion of the nerve-cell molecules. This is induced by the union of positive and negative N. in, or a nervical current through the cell. We shall explain it more minutely when we come to consciousness. In th

higher animals sensation is specialized by different sense-organs and fibers. There are five kinds of special senses, viz., touch, taste, smell, hearing and sight. Though all these perceptions are the result of the union of positive and negative N. in the cells of the cerebro-spinal centers, there is apparently such a wide difference in our subjective states. This difference depends in the first place on each sense having special apparatuses to receive, and special fibers to conduct the generated current of physical N. Secondly, the various physical processes of the impressions themselves generate different quantities of physical N., which helps also to effect different perceptions. Thermal, tactile, muscular and general sensations are all caused by afferent impulses of the same sensory fibers, and therefore all belong to the sense of touch. We begin with thermal impressions.

Heat and cold in physical science are due to a different degree of vibration of material particles. Contact with a hot object intensifies the vibration of the body molecules, and subsequently increases the amount of physical N., which, when combining in the nerve-centers, gives rise to the sensation of heat, whilst a colder object, whose molecular vibration is weaker, according to the law of temperature equalization, diminishes physical N., and this consequent decrease of the nervical currents is perceived in the sensorium as coldness. By sensorium we do not mean any localized area in the brain, but the first reached nerve-cells. The intensity of thermal sensations then depend on the amount of positive and negative N. uniting there, and is ultimately a more or less rapid vibration of the nerve-cell molecules. The physical N. fills the end bulbs of Krause, Pacian bodies and tactile corpuscles, etc., and always all the nerves of the respective piece of skin which is exposed to thermal influences are equally impressed by them. This forms the difference between thermal and tactile perceptions; for in the latter the pressure of an object is not exerted upon all nerve-ends in that part of integument uniformly. This contact or pressure

forces the negative N. of certain tactile corpuscles, etc., to traverse sensory nerves (*a*), Figure D., and to combine with some positive N. in the cells. The qualities of rough and smooth are produced by the pressure on the same nerve-ends, and the subsequent current of physical N. being interrupted. The longer these interruptions are the rougher the object appears, whilst on a completely smooth surface the generation of N. becomes almost continuous, although in a smaller quantity. The perception of a rough or smooth object is made more acute by rubbing over it. *A priori*, tactile sensations are a less rapid vibration of nerve-cell molecules than thermal, and tactile impressions when intensified go over into thermal ones.

Muscular sense, furthermore, is but a modification of tactile sensation. Instead of external objects or the surface of our body, we have here friction of the muscular structures with each other, or with sheaths, tendons, etc., and also pressure upon their sensory nerve-terminations. Afferent fibers are distributed not only to the surface, but also to internal parts of our body; though in the latter case more sparingly, for their use is not so greatly needed and not so various here. The degree of resistance is recognized by the amount of negative N. going up to the sensorium, or in other words, by the intensity of the contractions. This sensation is not very defined, but a vague, uncertain one, for it cannot be perceived by any other different sense. When muscular contractions become mingled with tactile impressions, we get the sensation of heavy or light. The relative difference in weight is caused by heavy objects inducing many and intensive currents of N., and light ones fewer and smaller, corresponding exactly in degree to the physical processes occurring in the acts of lifting, pushing, etc. Perception of weight is also modified by sight and tactile sense, viz., It is determined by the size of the object and by the extent of surface exposed to pressure. If the same weight presses upon surfaces of integument different in size, the sensation is

different. Upon a large space it is little acute, but a greater number of nerves being impressed, it is naturally referred to a large surface and a light object. Upon a small space the sensation is more acute in intensity, but as fewer cells in the sensorium are implicated, it is referred to a small and heavy object. Thus, we see, perception of weight is already a complex state of the nervous system. Hard and soft qualities are due to the difference with which objects resist muscular actions and press upon the skin. The muscular sense is here likewise always connected more or less with tactile sense.

Finally we come to general sensibility or common sensation. This term embraces all subjective states that are not specific, *i. e.*, that do not represent specific qualities of impressions. Of course, an impulse of any afferent nerve may produce it. Whenever positive and negative N. unite within a nerve-cell in a manner not exactly corresponding to a specific stimulation, or whenever a nervical current increases or decreases beyond a certain limit, so as to lose the character of any special sensation, this state of general feeling exists. The application of a stimulus to a nerve-trunk gives also rise to common sensation and this ordinarily develops soon that condition which we call pain. (More about general sensibility and pain under the head of Consciousness.)

We have yet to consider the other four special senses. Their terminal organs are more perfected and beautifully adapted to their respective use in the successive series of touch, taste, smell, hearing and sight. For the corresponding phenomena in physical science have the same succession in their quality, from the grosser to the finer process, viz., in general contact or friction with solid-touch, with liquid-taste, with gaseous substances—smell, vibration of material-sound, and of ethereal particles—light. Afferent nerves induce common and thermal sensibility in the same degree, less and less, as their proper sense organs become more and and more specialized. The gustatory and olfactory nerves give rise somewhat to tactile or thermal,

besides sapid and odorous sensations. The auditory and optic nerves are completely protected from grosser impressions, and therefore we perceive only specifically with them. Their commencements occupy smaller spaces respectively, but on account of the great variety of possible impressions and the very complicated arrangement of their terminations in the nerve-centers, they help to form the most important part of our subjective existence.

Taste is produced by contact of fluids with the gustatory apparatuses on the tongue, fauces, etc., or by the impressions of liquid matter upon the glosso-pharyngeal and lingual nerves. Properties, as sweet, bitter, sour, saline, and their variations, originate from the difference in the molecules of sweet, bitter, etc., substances. There may be present in a molecule of a sweet body so many atoms which, in touching the molecules of a gustatory organ, generate a certain quantity of physical N., whilst in a molecule of a bitter substance the number and arrangement of atoms differs, the amount of nervical current created by such contact is necessarily different. The sense of taste is closest allied to the sense of touch, and its sensations are mostly commingled with tactile, and very often with olfactory impressions. Smell, we call that sense originating from the friction of gaseous substances with the Schneiderian membrane. The difference in the perceptions here, like in those of taste, are due to the physical difference of the gas molecules; we need not, therefore explain it particularly. Pleasant and disagreeable vapors or odors are the result of education, habit, and an inherent disposition of the individual, according to some laws of evolution. Substances that exert a directly injurious influence on the tissues and system, are usually disagreeable to the senses. The intensity of taste or smell depends on the extent of gustatory or olfactory surface involved. These senses can be educated to a high degree, though not so much as the tactile sense. At first to the child or inexperienced, the perceptions of different vapors as well as odors, are not so widely diver-

gent; but they become so more and more, by the assistance of other sensory impressions, and in consequence of education and experience.

Hearing is brought forth by rythmical vibrations of the acoustic apparatuses in which the eighth pair of nerves terminate. These motions induce nervical currents, and subsequently auditory sensations. The acoustic apparatus is so complicated, in order to intensify sound-waves and to suppress them again quickly after having made impressions, and thus allowing no reflections to take place, which would blur the perceptions or render them indistinct. Each wave of a sound is communicated through the air, etc., to the terminal expansion of the auditory nerve in the cochlea, by throwing into a similar vibration some of the hair-cells or rod shaped organs of Corti, or some portion of the basilar membrane, whichever corresponds in some way to that particular sound-wave. The oscillation of molecules in these several acoustic organs generate N., the negative of which travels up the auditory fibers to the brain, giving rise there to a certain sensation of hearing. Pitch is due to various wave lengths or vibratory rapidities, producing different quantities of N., which, when uniting with their antipodals in the sensorium, create the idea of various sounds. Its difference is furthermore due to the fact that different nerve-fibers and nerve-cells are in functional activity. The intensity or loudness of a sound varies with the amplitude of the vibrations and the consequent number of the same auditory end organs and nerve-cells in action. If the number of Corti's organs, representing all a certain pitch, *i. e.*, whose molecules swing with the same rapidity, increases, the sound will appear louder; if a smaller number are vibrating the sound will lose its intensity; but the pitch remains unaltered in both cases. The generation of N. by the vibratory motions of sound-waves is continuous. As soon as the rhythm diminishes below a certain degree; for instance, to less than sixteen vibrations per second, the current of N. is also interrupted and the perception has lost the

character of a musical note. On the other hand, the number of different acoustic organs being definitely limited, the range of musical tones is restricted too. The quality of a sound is the result of the accompanying overtones. We can well understand that such overtones or concomitant vibrations affect the amount of physical N. generated by the fundamental sound, as well as the number of nerve-fibers and cells implicated in it. Such difference causes the sensation of different qualities of sounds.

Sensation of sight is excited by contact of vibrating ether particles with the retina. This friction, a physical process, too, like in the other senses, generates N., the negative of which is conducted by the optic nerve to nerve-cells, where, uniting with its antipodal it results in visual sensations. Shade or darkness are due simply to a diminution or an absence of vibration; the ether particles near the retina corresponding to the shaded or dark regions are at rest. The intensity of a luminous sensation is in proportion to the number of rays of light falling upon a certain space of retina, whilst the different colors of light are produced by the number of vibrations, which differs greatly, and also by the amplitude of each vibration. Thus violet rays will separate another amount of N. than red rays. This variance of the nervical currents in the sensorium, represents the difference in the sensation of colors. The reasons for the complexity and great delicacy of the visual apparatus are to be found in the subtleness of the ethereal matter whose motions it has to transmit to consciousness.

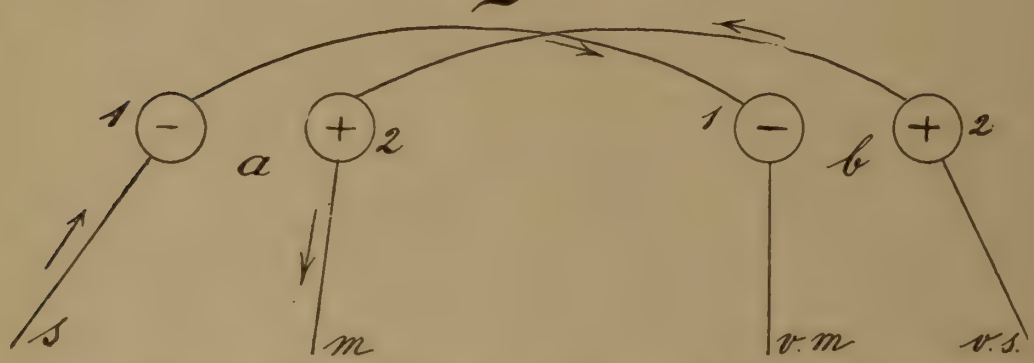
In regard to the quantity of negative N. taken up by the special sensory nerves, we must suppose that it is greatest where the physical process is coarsest; for instance, real contact of an ordinary molecule of matter with integumental tissue, will produce a much larger amount of N. than contact of ether particles with molecules in the retina; yet a sensation of light can be more intense than a tactile impression, so as to occupy our con-

sciousness foremost and attract our attention exclusively, although the amount of physical N. is much smaller in the former case than in the latter. We shall explain this more intelligibly later on.

There remains still one set of afferent nerve-fibers, which we have termed vasosensory nerves, (*b*) Figure D. The main part of these are formed by the free poles of the nerve-cells which collect the chemical N., due to the chemical changes of the nervous system, which are relatively very great. If there are no such filaments present the nerve-cells can be charged by their own retrogressive metamorphoses directly. As these vasosensory fibers convey merely chemical N., whose production is more or less equal throughout the body, *i. e.*, not submitted to many and great, but only to gradual variations, and as they have no assistance from other nerves, either of their own kind or of special senses, perceptions in the sympathetic centers are not very distinct and manifold; for in the ganglionic cells we locate, under the representation of positive and negative N. uniting with each other or, in other words, a current of chemical N. and subsequent molecular vibrating, all those vague sensations of an emotional character. These subjective states are accompanied of course by vasomotor disturbances, just as physical sensations are followed by motions of diverse kinds. *A priori*, these vasomotions are likewise sluggish, gradual and indistinct. There are then no special vaso sensations as there are no special apparatuses and impressions in the sympathetic nerves. Any difference of degree in one kind of an emotional subjectivity depends upon the intensity and number of nervical currents through some ganglionic cells. The normal or rather quiet state—the *dolce far niente*—exist if the individual is unconscious of any such vague sensations, *i. e.*, if the currents of N. are not subjected to any noticeable alteration. As soon as a sufficient difference occurs emotional feeling will result. We shall speak of this more fully under the head of emotions.

Reflexion of Nervicity. Under nervical reflexion we comprise in general any transformation of an afferent or sensory to an efferent or motor impulse. This takes place in the nerve-cells. There may be situated between an afferent and efferent fiber one, two, or a whole group of cells, or even several groups connected with each other and called nerve-centers. These are divided into lower, middle and higher centers, according to their more or less direct relation to the peripheral nerve-fibers. The lowest centers form a direct chain with the afferent and efferent fibers, and are located in the spinal cord, at the base of the brain and in the sympathetic system. The higher centers are connected to the lower ones and occupy the cerebral convolutions. The reflexion of course is

Fig. G.



most direct in the lower or spinal and sympathetic centers, and its simplest form is represented by the continuous currents of physical and chemical N., *vid.* Figure D.; there the negative physical N. is conducted from (*a*) to (*f*), and the chemical positive N., from (*b*) to (*e*) constantly, and we may call them rightly general currents. But a reflexion from (*a*) to (*e*), viz., a simple sensory-motor or reflex action proper, is induced whenever the current of negative N. from (*a*) in- or decreases. Likewise the reflexion from (*b*) to (*f*), is a direct reflex act in the sympathetic centers of whose nature we know but little *a priori.* This direct reflexion occurs in the following way: Figure G shows two cells of a simple spinal center (*a*), and also two of a sympathetic center (*b*).

The constant chemical and physical currents go through them (Figure D), the former through cells (2) and the latter through cells (1), in the manner illustrated in Figure C. If one current, say the physical, increases or decreases, the other chemical does so likewise, and *vice versa*, just as one electrical current induces another in an opposite direction in the induction apparatus of electricity. Altogether our knowledge of electricity is still in its cradle. Whether union of positive and negative electricity and an electrical current are identical in their essential nature or not; whether both electrical phenomena are due to molecular motions, as light and sound, all this is not yet settled. But it is enough for us to know that one nervical current excites another, or that a discharge of nerve-force in one group of cells induces a discharge in an adjoining group, etc. We attribute all these phenomena of nervic reflexions to the different induction processes. Thus it is seen, that cells (1) and (2), Figure G, or sensory and motor cells, need not be really connected by nerve-fibers but must be only in some sort of juxtaposition, and also that afferent and efferent fibers need not run parallel for their whole length, in order to induce mutually nervic currents, but that such relations must exist at least in their centers and intracentral connections. Of course sensation is produced accordingly either by union of positive and negative N. in a nerve-cell, or merely by a current of N. through a nerve-cell. Whenever we use, later on, one of these expressions, union or a current of N., the reader may substitute the other, *ad libitum.*

Next we come to the less direct reflexion of the nervous currents through the higher centers. The diagram in Figure H will help us to understand this process better. At (*a*) are the lower spinal or basal centers, at (*b*) the higher cerebral centers, and at (*c*) are the usual connections with the sympathetic ganglia; (*s*) are sensory, (*m*), motor nerves, and (*v s*) vasosensory, and (*v m*) vasomotor fibers. Now a direct reflexion, as in Figure G,

goes through cells 1, 9 — 10 and 2, and another through cells 3, 11 — 12 and 4. But if any change takes place, such as a sudden in- or decrease of the physical current, the afferent impulse, negative N., or inducing current, makes its course through cells 1, 5, 3 and 11, viz., through one of the cerebral centers at (*b*), instead of going only and directly from 1 to 9, through a spino-sympathetic or a reflex center proper, as in Figure G. The induced current of positive N. or the efferent impulse, then goes through cells 12, 4, 6 and 2, and not immediately through cells 10 and 2 to the muscle. Again, another inducing current goes through cells 1, 7, 3 and 11, and not directly through 1 and 9, and the induced current

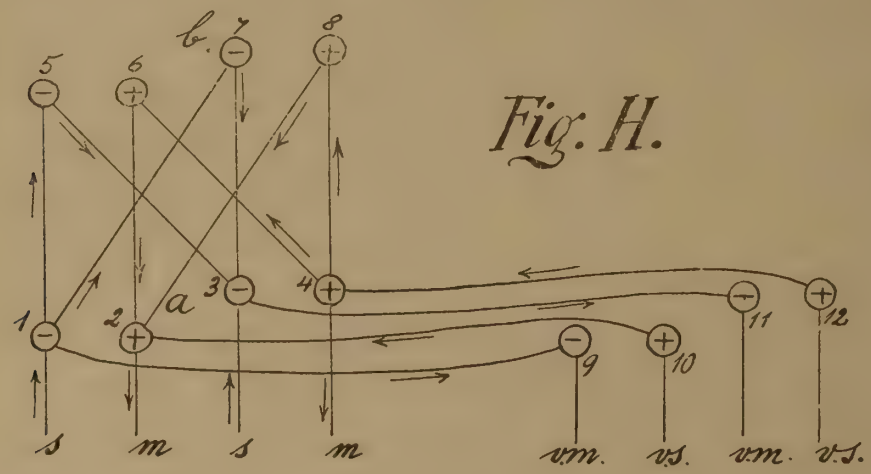


Fig. H.

goes then through cells 12, 4, 8 and 2, in place of going only through 10 and 2 to the muscle. Thus we see different reflexions produced, though started by afferent impulses of the same sensory fiber, viz., the currents may go through different higher or cerebral centers, cells 5 and 6, and 7 and 8, and then, according to the general induction law of electricity, different adjoined centers come into activity, *i. e.*, sensorymotor processes—afferent and efferent currents—become more complex and variated, from which different motions result. Although in Figure H the direct and indirect reflexion, both effect the same sensory and motor nerves, yet different intracentral fibers and different groups of cells in a higher layer are implicated, which induces again different centers to participate,

and thus modifies the resulting action. A direct reflex act is transformed to an indirect one, and we see also that the nervical currents run parallel for some distance in the centers, from (*a*) to (*b*), although in an opposite direction, which is an essential feature of every induction process. This rather complicated process is also called inhibition, and always when one reflex act is suppressed—inhibited—another one occurs. The nervical current here takes one route in preference of another. But we must still account for the reason why it chooses one, and often the longer circuit, in an inhibitory action, rather than the shorter and direct route. It is evident that under ordinary circumstances the current would select the shorter and direct route. But in consequence of such influences as education, habit, etc., it does not. Impressions on different senses, for instance, touch and sight, aggregate into one perception, and that must be of necessity in a center where tactile and optical fibers meet, viz., in one of the more complex or higher cerebral centers. For a nervical state in one group of cells attracts all nervical currents of other impressions when occurring simultaneously. At any rate this phenomenon of indirect reflexion is due to the organization of an individual, *i. e.*, to a certain arrangement of nerve-fibers and cells, partly inherited and partly to become established yet. Repeated exposure to the same impressions causes the resulting afferent impulse—negative N.—to make always the same circuit, whether direct or indirect. In other words, a habit is formed. Here the same or a similar amount of N. always selects one and the same route, though there be a shorter one, whenever the concerned nerve-fibers have become adapted to that peculiar current by its more or less frequent occurrence. More of this when we come to speak of volition.

The reflexions of N. (both in Figures G and H), through the centers of the sympathetic system, are nearly always direct and uniform, for there are but few complex and isolated mechanisms in that system. Nearly all the

ganglionic nerve-cells and groups of cells are connected to each other (cells 9 to 11, and 10 to 12, Figure H), and the resulting motions are likewise more uniform, for chemical stimulations are not manifold. The currents of chemical N. do not vary so much and often: there is no need for that in the animal economy. Experiments with the sympathetic nerves, as we know, being so difficult, our knowledge of their actions is but quite meager. The few phenomena that are perceptible will be discussed later on. *A priori*, we cannot talk of inhibitory centers as such, and of their localization in distinct, never-changing places; and there are no separate inhibitory nerves, and consequently no efferent inhibitory impulses. Every cell-group or nervous mechanism, as we have seen, can form an inhibitory center to another cell-group if connected together, and of course the optic thalami (higher centers) are most frequently the inhibitory centers to reflex acts of the spinal cord (lower centers).

(*To be Continued.*)

ON XEROSTOMIA.*

By Hugo Summa, A. M., M. D., St. Louis.

IT is an incontestable fact that a number of affections seldom occurring are more rarely observed and reported on account of want of knowledge of them. Everyone acquainted with the daily literature of medical science may have observed, repeatedly, that a short time after a sharp and thinking observer has brought some new disease to the knowledge of the professional world, a larger number of similar observations were reported, not because the disease suddenly occurred more frequently, but because it was formerly overlooked.

The same scene could be observed in the case of that affection called xerostomia. After Jonathan Hutchinson had called the attention of the Clinical Society of London a second time to the disease in question yet in the same meeting then there were reported five similar cases.

On the whole the occurrence of this ailment seems to to be such a rare one that the publication of each single case is yet justified, the more when the same was not uncomplicated and has given a satisfactory therapeutic result.

It is perhaps of some interest to consider the subject of this paper first from a historical stand-point.

It was in the year of 1868 when an anonymous writer in the November number of the *Medical Times and Gazette*, reported a case of complete suppression of the secretion of saliva in a female patient. This report remained unnoticed almost twenty years, until in the year 1886 Jonathan Hutchinson presented a similar case to the Neurological Society of London, under the name of "dry mouth"—this term expressing the chief feature of the malady. The same case was in the following year (1887) presented to the

* Read before the St. Louis Academy of Medicine, February 26, 1890.

Clinical Society of London, before which, at the end of the same year, W. B. Hadden read a paper on "Dry Mouth, or Suppression of the Salivary and Buccal Secretions," with the report of a personal observation.

The fourth case was reported in the beginning of 1888, by Wm. Rowlands, under the title "Permanent Suppression of the Salivary Secretions."

The fifth case was a second case observed by Jonathan Hutchinson, in 1888, and presented to the Clinical Society of London. On this occasion he contended that it was advisable to give to this well-defined clinical state a term which could be accepted by the whole medical world. He proposed therefore to call it "persisting aptyalism," a word which was sharply criticised by Hadden. As the term of ptyalism signifies an excessive flow of saliva, therefore, logically aptyalism would mean the non-existence of an excessive flow, or in other words, a normal secretion. Hadden as well as Hutchinson consulted after this meeting men well versed in classics for a correct term, derived from the Latin or Greek language, and both proposed, independently from each other, to call the disease in question "xerostomia," from *xeros* (dry) and *stoma* (mouth).

Before entering into a detailed description of all the clinical features of xerostomia, I would like to report a case of that kind observed by myself during last winter. The patient was a lady thirty years of age. There was no history of a neurotic disposition in her family. She herself always enjoyed good health except during the previous two pregnancies, when she continually suffered from vomitus gravidarum. At the time of my observation she was pregnant for the third time, being in the seventh month. She suffered again since the second month of pregnancy, from vomitus gravidarum, and since about one and a half months before I was called to see her, from a very troublesome dryness of the oral and pharyngeal cavity. The reason for her calling on me was neither for this trouble nor the vomitus, but a very bad feeling in the whole body. The tongue appeared red, devoid of epithelium with fur-

rows, the mucous membrane of the cheeks pale. Tongue, inside of the cheeks, palate, and the back of the pharynx entirely dry. Within a few days of observation it became obvious that I had to deal with a typhoid fever, thus far uncomplicated. You may imagine how difficult the management of such a case—typhoid fever in a pregnant woman suffering from vomitus gravidarum and that affection of the mouth which we have to call xerostomia—was.

Nevertheless at the end of the third week the temperature began to fall, and after the elapse of four weeks complete recovery had taken place. The vomiting of pregnancy as well as the strange affection of the mouth continued. Four days after my last call the lady had a miscarriage, giving birth to a male child almost devoid of subcutaneous adipose tissue and of a very aged appearance. The child only lived two days, and died of icterus neonatorum. Vomiting completely stopped, but no amelioration of the dryness of the mouth could be observed. After the elapse of about twelve days I thought the patient strong enough to subject her to a treatment of the mouth affection. My experiences in that respect will be reported when I speak in general of the therapeutic measures to be taken in this rare ailment.

The numerous complications observed in the case just reported forces me first to prove that my case was a true case of xerostomia, not a sequela neither of the pregnant condition nor of the vomitus gravidarum, nor of the typhoid fever. As to the last named affection, I have only to call your attention to the anamnesis according to which the affection existed already one and a half months before the first symptoms of typhoid fever appeared, that it did not disappear with the typhoid fever, and that the course of the infectious disease did not change at all the pathological conditon of the oral and pharyngeal cavity as noticed in the very beginning of the constitutional disease. As to the vomiting of pregnancy, I have to point out that my patient suffered from this affection during the first two pregnancies also, but without having noticed such a dryness

in the mouth as at this time. Then the vomitus gravidarum disappeared in the moment the child was born—the dryness of the mouth continued. It is true, as far as I am informed, that in a number of cases of vomiting of pregnancy we find the mouth dry and the tongue red and shiny, but in my case the dryness of the mouth was obviously independent as to the time of its occurrence from that of the vomitus. And in respect to the last point, viz., the pregnant condition of the patient, we must remember that pregnancy, if at all, only increases the secretion of the saliva.

And now I will try to give a sketch of all the clinical features of xerostomia:

(*a*). *Ætiology and Pathology.*—The term "xerostomia" ought to be applied only to those cases of dry mouth, which after a thorough examination of the patient must be regarded as produced by a so-called functional derangement of the salivary and buccal glands. In a certain period of life the mouth is never moist, viz., during the first two months; at a later period saliva is copiously secreted. Those cases of dry mouth which accompany feverish diseases, or the long continued use of belladonna and of drugs of similar physiological action do not belong to it. Even those cases of dry mouth have to be excluded which are only the precursors of other disorders of the nervous system. The cases so far reported occurred only in women, and most of them in women of past middle age. They were characterized by a general nervous temperament. The disease made its appearance in some cases suddenly, in others gradually.

Xerostomia is evidently a very definite disease. Its essence consists in a complete and sometimes permanent arrest of all salivary and buccal secretion. Only in one case it is reported that there was an "almost entire" suppression.

It is very interesting to hear what the very father of modern pathology, Cohnheim, in his classical work, "Lectures on Pathology," writes concerning the complete

arrest of the secretion of saliva: "It may probably, if at all, occur under the following conditions. Either there is a destruction of all salivary glands, or there is a complete abolition of all nervous influences upon these glands. We know positively only one single cause which diminishes the secretion of saliva, that is the febrile increase of temperature. In diseases of human beings we have to deal only with a diminution, never with a total arrest of the production of saliva. Under the influence of fever, not only the salivary glands secrete less, but also the production of the mucus is diminished. By this fact alone it can be understood that the oral cavity of feverish patients is so readily dried."

We know now that there are some cases of complete arrest of the secretion of saliva, and according to our knowledge of the physiological production of saliva, we must suppose as the cause of this malady some disorder of the nervous system. Dr. Hughlings Jackson thought that the equivalent of the cells of Clarke's column in the medulla oblongata might be the seat of this disease.

(*b*). *Symptomatology.*—The chief symptom consists in intense dryness of the mouth and throat. This dryness prevents from speaking, swallowing, in the beginning only, and causes sometimes a sensation of choking. Sleep is very much disturbed. But fortunately the discomfort gradually abates.

The tongue is dry, looks like raw beef, devoid of epithelium, cracked in all directions like alligator skin. In some cases there are no signs of papillæ on the anterior surface of the tongue, but the circumvallate are distinguishable. Only in one case much ulceration was found. The common sensation is unimpaired, but the sense of taste retarded in consequence of deficiency of moisture. There is usually no defect of secretion in the nose, no difficulty in the flow of tears, both conjunctivæ are moist; perspiration takes place very freely. Only in Hadden's case the perspiration was notably diminished and the lachrymal secretion arrested. The salivary glands

were, as far as could be detected, in all cases natural in size; also the tonsils.

Treatment.—As to the therapeutical measures to be taken in these cases it seems to be of great importance that the affection comes in its beginning or short time afterwards under medical treatment. Of all ten cases so far reported only three gave a satisfactory therapeutical result, viz., Hadden's, Broadbent's and my own case, all of which were treated from two to four months after the appearance of the first symptoms.

The patient receives some relief by constantly sipping cold water.

As a matter of course we shall use drugs the physiological action of which is especially directed towards the secretion of glands. Mercury, jaborandi, pilocarpin and iodide have been used.

In the treatment of my case I was led by the well-known fact that we possess in pilocarpin an alkaloid of a very strong influence upon the centers of perspiration and secretion of saliva. But I did not risk to use this drug until I thought my patient strong enough. I gave her first $\frac{1}{4}$ gr. of muriate of pilocarpin internally four times a day, as hypodermic injections were not permitted. The result was not satisfactory. It produced profuse perspiration and only a small amount of saliva was secreted. The secretion stopped simultaneously with perspiration. After a few days I decided to give the same drug in smaller doses $\frac{1}{15}$ gr., but oftener a day, and after about a week I had the pleasure to find my patient almost completely restored to health.

I found that Hadden used the same drug in form of the tincture of jaborandi, and saw "some" (at another place he writes, "much") benefit from its administration.

Broadbent used different drugs, but only iodides effected improvement.

Another writer in the *Lancet*, number of January, 1888, Alex. Harkin, proposed to use the chlorate of potassium.

He cites a part of an article written by him in the November number of the *Dublin Journal of Medical Science*, for 1880, entitled, "Some Important Therapeutic Effects of Chlorate of Potassium, with Special Reference to its Action on the Conglomerate Glands." The passage is as follows: "As chlorate of potassium exerts a salutary influence on all vital phenomena, especially upon the processes of cell growth, nutrition and secretion we might naturally expect to find that its administration in an abnormal condition of the conglomerate glands would be followed by evidence of its power; and such is the case, for example, in functional derangement of the salivary and mammary glands. The first named may fail in secreting power from congenital defects, as in a class recognized by naturalists as 'dry-mouthed' families, or from the effects of wasting diseases such as diabetes. They may, on the other hand, from various causes suffer from an excess of secretion. * * * In either case—whether that of ptyalism or its opposite condition—chlorate of potassium taken internally in sufficient doses (20 grs. in solution three times daily) restores the balance and regulates the condition. * * * The salt simply acts as a regulator in the first instance, exalting the physiological power when below par, and in the second by reducing to normal limits the working of the gland when in an excited condition."

The *prognosis* of xerostomia is favorable, *quoad vitam*, but doubtful as regards complete recovery; we may say unfavorably when the disease has been lasting for some time. It is worth while to mention that in Wm. Rowland's case of ten years standing the absence of saliva has made no difference to the patient's general health. Hutchinson also stated that in one of his cases, although persisting from three to four years, no material depreciation of the patient's health could be observed.

The *diagnosis* is made very easily. An ocular inspection of the mouth reveals at once the morbid stage of the suffering parts, and then we must be able to exclude

all diseases or other influences of which we already know that they are accompanied or followed, by a decrease or complete arrest of the salivary secretion.

In his presidential address before the Neurological Society of London, delivered January 24th, 1889, Jonathan Hutchinson spoke once more of xerostomia as an important illustration of the influence of the nervous system in controlling and entirely arresting the secretion of glands. He alludes to the analogy existing between the different secreting glands and believes that what we see demonstrated in the mouth in case of xerostomia may occur in other regions and viscera, and that there may possibly be a neurotic arrest of secretion of liver, pancreas, testes, etc.

It is very interesting to compare with this opinion a passage taken from the excellent work of Lyonel Beale on "The Liver," which is as follows: "The action of the liver, like that of the glandular organs, is greatly, and sometimes almost suddenly, influenced by changes occurring in the nervous system. During the early period of life, and in healthy adults, the influence of change in the nerve-centers is very decided. Emotional excitement seems to exert a direct and almost immediate action. In some cases the individual is at once aware of hepatic disturbance and sometimes of the almost sudden suspension of the normal changes."

Verecunde ab illis dissentio. I must confess that I doubt in the correctness of this conclusion by analogy, as there is a very sharp difference between the secretory work of the salivary glands and other glands. The secretion of saliva is not simply the result of the amount of blood in the glands. There is a factor independent of the changes in the state of the vessels. We may have secretion of saliva without a blood stream, a phenomenon not existing, as far as we know, in other glands.

SELECTIONS.

CLINICAL NEUROLOGY.

Epileptoid Disease.—Dr. C. H. Hughes, in a note on the epileptoid alternates and psychical substitutes and sequences of epilepsia gravior, written for the *Medical Mirror*, reiterates his formerly expressed views in regard to consciousness in epilepsy, and gives some illustrations of epileptoid disease, as follows:

It must be borne in mind that the loss of consciousness, which is considered by most all authors as the invariable accompaniment of true epilepsy, but which I do not consider invariably the case or always absolutely essential to the disease, is often but transiently lost in epileptoid, and sometimes even in the *grand mal* not at all, and that the convulsions are often very partial and transient and sometimes entirely wanting.

An automatism of the mind and sometimes a mere absent-mindedness take the place of the usual unconscious seizure, and a mere halt in movement, a momentary suspension of some accustomed act about to be performed, or a slight perversion of it, marks all that is discernible in the symptomatology of epileptoid disease. An arm or a leg, a muscle of the face, or a finger or two of the hand or foot, may become momentarily involved in spasm, or may move more tardily than usual under the will's direction, as in Morbus Thomsenii, or a movement begun in consciousness goes on to completion unconsciously. I have known a patient who on several occasions would stop half-way in the signing of his name and be for a few seconds oblivious; another one to sign his name correctly enough though unconsciously, much to his surprise.

Acts of somnambulism developed in middle and advanced life in persons who had not been subject to sleep-walking in childhood, often take the place of an epileptic seizure, as may other automatisms, and many strange and otherwise unaccountable acts of epileptics, like sudden disappearances, departures from home and improprieties of speech or conduct, as well as the more startlingly insane acts, are often due to this psychical

alternative action of the brain in epilepsy. A psychical spasm—a morbid mental impulse—is substituted for the unconscious seizure and physical convulsion, or a degree of mental automatism, less in degree but not different in kind, supplements it. A patient will in the midst of a conversation begin to spit rapidly and without his usual sense of propriety, or blow his nose, or suddenly get up and sit down again, during a conversation, and make no apology, or stick out his tongue or stop suddenly in conversation or in whatever he is doing and make no explanation, or use expressions not natural to him, or if they are natural, expressions which are then and there out of place; or turn round, or get up and take a few steps, or stop suddenly if walking with you and make no apology, or, in the midst of a discourse go over a page of manuscript correctly enough without being able to recall what has been read, as has happened to a reverend patient of mine not now in St. Louis.

A convulsion may occur with consciousness, as the reader may see by reference to cases that have within recent years been reported in the ALIENIST AND NEUROLOGIST and as once happened to the celebrated Cowper. According to his own account, "a conflict that shook him to pieces" (he says) "suddenly took place, not properly a trembling but a convulsive agitation, which deprived him in a manner of the use of his limbs, and his mind was as much shaken as his body." Elliotson, P. 594, 1844.

A patient of Dr. Hughes, having frequent nocturnal attacks of *grand mal* arose one night at the ordinary time for his fit, dressed himself, walked to his barn and pasture, looked several times at his watch, returned, undressed in a methodical manner and went to bed, without having any other epileptic manifestations that night, and arose the next morning entirely unconscious that anything had occurred to him during the night. A little epileptic girl patient, whose paroxysms are suppressed, has taken to singing all day in lieu of the usual succession of fits.

Another case of a boy, who would proceed to undress himself, crying as if in fright, taking off every article of clothing, and he would then proceed to replace them, no other convulsive act following or preceding this automatic procedure. He would struggle and fight and cry, and resisted till the fit was over, when he would become quiet and tractable.

A Unique Case of Habitual Constipation of Neurotic (?) Origin.—Joseph M. Mathews, M. D., Professor of Surgery, Kentucky School of Medicine, records in the *Medical Mirror* the case of a young girl, aged eighteen years, seen with Drs. Blackburn and Corrigan, who became so extremely constipated that from two weeks, the time extended to one month between the movements, until now it finally reached the space of four months, she having gone as long as seven months without anything whatever passing from her bowels. For several years she had much difficulty in passing water, so much so that, by the advice of a physician, she began to use a catheter on herself, and withdrawing her urine frequently through the day and night, and now cannot pass water without the aid of the instrument. About two years ago, just after she had passed the catheter into the bladder, she was seized with great pain and an irresistible desire to strain, and in the effort to do so passed a good-sized stone, which cut her fearfully in passing. She sleeps badly, owing, I think, to her fearfully nervous condition. The parents' statement corroborated the girl's. They had often put a watch upon the girl, to substantiate or disprove what she said. The girl would not leave her room for months at a time, and there being a large family, some one was present with her all the time. A movement from the girl's bowels was not only an event in the family, but to the neighborhood also. An action was accompanied with great pain, and she would scream aloud. After or during the movement she would have a swooning spell and great contraction of all the muscles. A careful examination of the patient, accompanied by Drs. Blackburn and Vance, showed complexion muddy, tongue slightly coated, pulse sixty, temperature normal, pupils dilated, flesh fairly firm, no odor from body. No enlargement of abdomen, either tympanitic or otherwise, menses regular, and normal in quantity. The patient was put under the influence of chloroform, and the bladder explored, the symptoms indicating the necessity for the same. The bladder was free of stone, but abnormally large. The rectum and colon were explored but nothing found unnatural there. Even the mucous membrane was perfect in color. No contraction or impaction existed in either. There was present in the flexure some soft fecal matter. With a Wales rectal bougie the colon was flooded with hot water: nothing abnormal was found there. Chloroform

was stopped, when we noticed that the pulse was wonderfully feeble, and for fifteen minutes we thought she would die from the effect of the anæsthetic. Hypodermics of ether and whisky were used together, with the inhalation of nitrite of amyl. The bad symptoms were disappearing when she went into a cataleptic condition which lasted about thirty minutes. From this and the examination she soon recovered and in a few days was back to her usual condition. There was no womb or ovarian complication in the case. And the doctors' opinion is that it is entirely neurotic in origin and kept up by a nervous hysterical condition. But the question is, can we not cure such a condition? All efforts have been failures in this case. I believe the history given by the girl to be truthful in every particular. The points to which attention is especially called are the following:

1. The length of time between the action of the bowels—averaging four months.

2. The fact that no impaction of feces existed in the rectum, colon, or sigmoid flexure.

3. That no odor emanated from the body.

4. The little damage done to the general health.

[This is an interesting case, in our judgment, of hysterical deception. We give it place as such. A hysterical woman on deception bent is more than a match, often, for three doctors of even more than ordinary discrimination, like the gentlemen above named.—Ed.]

Diagnosis of Progressive Paralysis in its Prodromal Stage.—This stage may anticipate the later and more pronounced stage by ten years, and may affect the mind as well as the body. In this early stage, rheumatoid pains, neuralgias and hemicrania are frequent; and the latter, especially in an elderly person, is always suspicious. These pains may disappear after a time, to be followed by eye symptoms, generally unilateral.

Among the motor phenomena, the following are of consequence: Various epileptic and epileptoid attacks, vomiting, transitory paralyses, aphasia, or some difficulty in speaking, and various eye symptoms. The knee tendon reflex may be increased or diminished, according as the lateral or posterior columns are implicated; and it may differ on the same subject. Later there is impotence, incontinence of urine, sleeplessness and gastric troubles.

Among the mental symptoms to be noted are occa-

sional transitory attacks of excitement, due to trivial causes, a tendency to brutality and sensuality, or attacks of great depression.

Whenever there is the least suspicion of progressive paralysis a complete withdrawal from business should be ordered, and all long journeys, irritating pursuits and forced cold water cures should be avoided.—*Deutsche Med. Zeit.*

NEUROPHYSIOLOGY.

POOLE'S THEORY — EPILEPSY. — (*Concluded.*) — From a *brochure* on the necessity for a modification of certain doctrines regarding the inter-relations of nerve and muscle, by Dr. Thos. W. Poole.

Objections to this Theory.—1. It has been objected to this theory that "a muscle can contract when irritation is directly applied without the intervention of nerves." Now, I am not in the least disposed, or obliged, to dispute this assertion, for reasons which will appear later on. My thesis has much to gain and nothing to lose, by the fullest admission of the independent irritability of muscular tissue. But it is exceedingly difficult, if not at present impossible, to say when a still irritable muscle has been deprived of "the intervention of its nerves." Certainly such is not the case in the experiments cited by Dr. M. Foster, in the Hand-book heretofore referred to, where the experimenter, in order to produce the ideo-muscular contraction, is to choose "a muscle which has been much exhausted by treatment or by long removal from the body," and to "wait till neither muscle nor nerve give any ordinary contraction with an electric stimulus." It cannot be held to be proven that in such a nerve-muscle there is not still remaining a force in the weakened nerve sufficient to control the equally weakened muscle.

Curare and the Motor Nerve Endings.—2. It has also been objected that, while the motor nerve endings are paralyzed by curare, the muscle does not contract, as it ought to do if this theory were correct. To this I have to reply, that if the muscles are not found contracted it is partly due to the insufficiency of the poisoning of the motor nerves, and partly to the fact curare diminishes the contractile energy of the muscle. (Rosenthal, Muscles, etc., P. 254). Nicotine and conine act precisely

like curare (Ib., P. 253), and in the final action of these three poisons, motor nerve paralysis and spasm, or convulsion of the muscles, occupy a prominent place. (Ringer). The special results vary, of course, in different animals. Nicotia sometimes acts like an anæsthetic; (Stille and Maisch, P. 372); and the same is doubtless true of the others. Now, anæsthetics induce muscular relaxation by deoxydizing the blood; and nicotine is known to disorganize the red corpuscles which are the oxygen carriers. It is doubtless in this way that, under the slow action of these poisons, muscular relaxation is brought about. If death be rapidly produced by curare, convulsions occur. (Stille and Maisch). Here the motor nerves are paralyzed before time has been afforded for the poison to lower the irritability of the muscle, which passes into tonic or clonic spasms according to its freedom, thus behaving as it "ought" to do. Is not this a sufficient answer to the objection?

But more remains to be said. The experiments with curare are not so conclusive as to be beyond the reach of criticism. They were intended to prove the independent irritability of muscle, which is now generally an accepted fact among physiologists. M. Rosenthal asserts that these experiments (and those of Kuhne upon the sartorious muscle), do not prove this; which is equivalent to stating that it is not proved that curare paralyzes the motor nerve endings.

More direct evidence upon this point is that of Dr. Onimus, who, not long ago, "read a paper before the Academy of Medicine, Paris, upon electro-muscular contractility and the action of curare. Contrary to the opinion of M. Claude Bernard, Dr. Onimus believed that curare does not act on all parts of the motor nerves, but only on their trunks—the nerve centers and terminal filaments being unaffected."—*N. Y. Med. Record*, 1880, P. 73.

In view of these authoritative opinions (and doubtless of others to which I have not access) it is evident that this objection falls to the ground and loses the weight which otherwise might attach to it.

But suppose it were established beyond doubt that the influence of the nerve were completely eliminated from the muscle in any case, and that the contractile protoplasmic masses of the muscle were left wholly to themselves, and their life being not yet extinct, that they gave token of

that still flickering life when comparatively rudely assailed by a shock of electricity or a corrosive or injurious agent—what then? Such signs of irritability, elicited under such circumstances would not militate against my thesis; for such would be the behavior to be expected from still living protoplasm, wherever found, and would in no way disprove the contention that in the association of nerve and muscle in the organism the *rôle* of the nerve is to restrain or control the protoplasmic energy of the muscle so long as their mutual relations continue. For, after all, "the contraction of the muscular tissue is, in fact, a limited and definite amœboid movement, in which intensity and rapidity are gained at the expense of variety." (Dr. M. Foster, Phys., P. 63.)

Indeed, I think the rational view of the situation just depicted, turns the argument the other way; and tends to show that in the joint *rôle* of nerve and muscle the function of the nerve is *not* to goad or stimulate the muscle to contract. To suppose this is to assign to nerve energy the relative value of the fifth wheel in the coach. Such enduring power of contractility as the muscle here exhibits evidently needs no supplementary aid from the nerve. What it really *does* need, however, is restraint, control and co-ordination for the purposes of the organization of which it is a part.

Other Objections.—A further objection has been suggested, on the ground that on a nervous impulse reaching a muscle, an electric current is generated during the period immediately preceding the contraction of the muscle; but this is an objection which is only of any force on the assumption that electricity is a stimulant. There is nothing in the action taking place here to show that the electric current is a stimulant rather than a paralyzer. There is simply a "freeing of the forces in the muscle," just as the spark of electricity frees the forces bound up in gunpowder, and so fires the train. (Rosenthal, P. 250).

As for the additional plea that nerve force and muscle force are too much alike for us to consider one a paralyzing and the other a contracting agent: that is merely begging the question. Nothing whatever is known regarding the nature of these forces; and the intimate structures of nerve and muscle are so widely different as to justify the idea that the product, so to speak, of each, is equally diverse.

This theory has been objected to as a proposed

addition to the inhibitory system of the text-books. This is a mistake. If the views here enunciated were adopted, the huge incubus of the present inhibitory hypothesis could be in great part swept away, to the great advantage both of physiology and therapeutics.

If it be claimed that on the cutting of the spinal cord or of a nerve trunk, the "irritation" set up at the point of cutting, or the generation of electrical currents as the result of chemical change in the transverse section, act as a stimulus, and that contraction of the corresponding muscle is thus produced, such a claim must be regarded as untenable for the following reason: The acts just referred to cannot be stimulating acts, because they are attended by precisely similar effects as are produced in the muscle by death from any cause, in which condition, it is needless to say, nervous activity is not increased. The proof of this has already been sufficiently vouched for, and need not be repeated here.

Of course, I do not pretend that all difficulties vanish in the light of the theory here advocated. There are very serious, if not insurmountable, difficulties in the theory of the text-books; as the facts of the foregoing pages fully show. What I claim is, that the view here presented rests on a rational basis, and, though presented very inadequately, and under many disadvantages, has the merit of furnishing a key to many obscure phenomena in the organism, and is entitled to the fair and candid consideration of the members of our profession.

Arterial Pressure in Epileptic Paroxysms and Fits of Temper.—M. Féré has found an increase of from 200 to 300 grammes in the arterial pressure during the aura of an epileptic attack. This increased pressure continues during the convulsive period, but falls below the normal when the attack has ended. This period of depression lasts from several hours to a day after the attack. After a series of several attacks the depression may amount to 300 to 400 grammes, and may last several days.

Experimentally, he finds that a sudden relief from this high arterial pressure during an attack (by means of a Junod boot, for instance) will stop the attack temporarily.

A sudden fit of anger raises the arterial pressure also 200 to 300 grammes, and this fact shows the necessity of instructing epileptics to avoid such excitement if possible.

These researches have a practical bearing also in the therapeutics of the disease, and explain the action of many abortive remedies already in use.—*Compt. rend. de la Soc. de Biol.*, May 25, 1889.

Effect of Extirpation of the Cerebral Hemispheres in the Dog.—M. Goltz has removed, at two sittings, seven months apart, both cerebral hemispheres of an adult dog, the animal living fifty-one days after the second operation, and then dying of pneumonia provoked by the penetration of foreign bodies into the bronchi.

The author states that the functions of motion and sensibility were preserved, and that sleeping and waking were normal.

Blindness ensued from separation of the optic tract, and the condition of hearing could not be determined. The voice remained normal and expressive. Some consciousness seemed to be retained, as he went out of his box to deposit his excreta.

The dog could not feed himself nor take food given to him, but would swallow what was pushed clear down to the commencement of the œsophagus. It seemed to experience the sensations of hunger and thirst, as it was restless before and quiet after feeding.—*La Tribune Méd.*, June 13, 1889.

NEUROTHERAPY.

Antipyrine in Tetanus—Dr. Alexandre, Paris, in a note to *L'Union Médicale*, January 18, 1890, relates the following interesting case:

"In the second fortnight of June, 1889, a patient in my service (at the Insane Asylum of Alençon), an old man of about sixty-five years, habitually employed in the gardens, presented prodromic symptoms of tetanus, trismus and risus sardonicus, which disappeared rapidly under treatment with hydrate of chloral.

"I believed him cured, but July 8 new symptoms showed that I had secured only a remission: trismus and the sardonic grin announced a new attack. The contractures were not long limited to the muscles of the face and cervical region: they rapidly became general and, in a few days the muscles of the thorax, upper limbs, abdomen and lower limbs were tetanized: obstinate constipation indicated the involvement also of the digestive tube.

"Commencing July 8, I had my patient take hydrate of chloral, in doses soon increased to six grammes (3iss). As I was treating an old man, of very feeble constitution, I did not attempt to go beyond that. Some purgations completed the treatment.

"July 28 I had obtained no amelioration: the chloral had been omitted for four days. My patient had complained for several days already of quite acute pains which dry frictions had been able to relieve at the beginning, but which they soon did not allay. The pains were especially acute in the lower limbs, to which not the slightest movement could be imparted and which remained straight. I gave to this unfortunate one three grammes (45 grains) of antipyrine. The next morning, July 29, I found considerable improvement. Another dose of three grammes of antipyrine was taken on the 29th and 30th. No muscle was convulsed, no pain was felt: the patient was able to move his limbs, to eat, and respiration was easy. There remained only a gastric disturbance. When I left the service, in October, no relapse had occurred.

"Was the sudden cessation of symptoms after the treatment with antipyrine simply a coincidence, or was the cure due to the antipyrine? New observations must answer."

Acetanilide in Pediatric Practice.—*Whooping-Cough and Convulsions.* After treating fifty cases of whooping-cough with acetanilide, I am convinced we have a valuable remedy for the disease. Given in doses of from two and one-half to five grains every two to four hours, according to age, we can materially mitigate the severity of the paroxysms and reduce their frequency. By the judicious administration of the remedy, coupled with proper attention to diet, clothing and an open state of the alimentary canal, we rob the disease of three-fourths of its discomforts, terrors and dangers.

In November, 1888, in a paper read to the McDowell Medical Society, of Kentucky, on "Infantile Convulsions," I testified as follows: "In acetanilide I am sure we have an excellent remedy for the relief and prevention of convulsions. Clinical experience for one year justifies the conclusion. In confirmation of my own experience of its value in the convulsive diseases, I note the fact that Dr. H. H. Moyer, in the *London Medical Recorder* of August 20, 1888, reports favorably on its use in epilepsy

in five-grain doses three times daily."—Seven months' additional clinical experience endorses the position taken above.—I. N. Love, in *Archives of Pediatrics*, Aug., 1889.

Incompatibles of Atipyrine—A Paris druggist, M. Blainville, dispensing a prescription of antipyrine and chloral hydrate in water, observed an oily precipitate, having the smell of coriander. There was no resemblance to either drug in the taste of the resulting mixture.

Antipyrine and spiritus ætheris nitrosi and potassium nitrite have been known for a longer time than the above to be incompatible. Knorr showed this incompatible compound not to be toxic however. Wood has shown this by experiments on dogs and rabbits. Nitrites and antipyrine seem to render each the other inert.

Quinine and antipyrine too form a precipitate in the the same solution.

Concerning Epilepsia and Peacock's Bromides.—Dr. J. Stinson Harrison, of Washington, D. C., says: "About one year ago I was called to see a gentleman of this city, who for fourteen years had been suffering from frequent epileptic fits, sometimes severe, sometimes light. I exhausted remedies upon him with but little benefit. Six months since I commenced the use of Peacock's bromides and am pleased to say that from the very first day of its use he has not had a single paroxysm."

Untoward Effects of Exalgin.—Dr. Lloyd Jones (*Brit. Med. Jour.*) reports the case of an amenorrheic, constipated myelitic girl in whom six grains of exalgin, given thrice daily, produced decided cyanosis and delirium, which later passed into coma. There was slight rise of temperature.—*Medical Standard.*

NEUROPATHOLOGY.

Changes of Character in Man Following Lesions of the Anterior Lobe.—Welt (*Deutsch. Archiv. f. Kl. Med.*) has shown, by cases under his own observation, as well as by those scattered about in medical literature, that marked changes of character or disposition occur very frequently after lesions of the anterior lobe of the cerebrum with absence of all other cerebral symptoms, and that there

is direct connection between the two. The changes vary greatly as to time of appearance, nature and duration. In all the observations, with the exception of one that remains doubtful, the surface of the frontal lobe was the portion affected; in three cases the lesion involved the first and third convolutions; in three others the first alone was involved, and in two others the lesion extended from the first to the third convolution. There were *post-mortem* records in all eight cases, which showed that the portion which was uniformly involved was that part of the orbital convolutions lying nearest the median line, or in other words, always the first frontal convolution. To localize more exactly, Welt says that it is the cortex of the first convolution, or that lying nearest the median line, of the orbital surface, and of the right rather than the left frontal lobe. These observations are said to be entirely in accord with those of Goltz, Ferrier and Lusanna upon the lower animals. Dogs from whom the anterior lobe has been removed show no motor or sensory disturbances, but the disposition frequently undergoes a complete change. They become irritable, pugnacious, and avoid association with other dogs; uneasy and impatient, they run about without rest, and there is a loss of intelligence. Ferrier found similar changes in monkeys, Lusanna, in dogs and pigeons.—*Med. Chir. Rundschau.*

Pathological Anatomy of Landry's Paralysis.—Nauwerck and Barth report (*Deutsch. Med. Zeit.*) the following interesting case: "A girl, twenty years old, who has suffered for some time from pains in both legs, noticed that her legs began to be paralyzed. This paralysis later attacked her body and arms. The paralyzed muscles did not atrophy, and never lost their normal electrical irritability. The reflexes in the lower part of the body were abolished. The sphincters, however, were unaffected. Just before death, a slight improvement in the paralyzed muscles was noticed, and the sudden death, due to bulbar paralysis, was quite unexpected. A microscopical examination of the brain and spinal cord was negative. The nerves of the cauda equina, however, showed evidences of a severe interstitial neuritis; and the sciatics as well as the anterior and posterior roots of the spinal nerves, were similarly affected. The bulbar nerves and the nerves of the upper extremity were normal. Nauwerck and Barth conclude from this case that the peripheral nerves are

the ones affected. Also, from the enlarged spleen, found that it is an infectious disease.—*Times and Register.*

Bacilli in Landry's Paralysis.—Dr. E. Centanni, of the Pathological Institute at Bologna, made an anatomical examination of a typical case of acute ascending paralysis, and found an acute interstitial neuritis, indirectly involving the spinal cord. A peculiar bacillus was found in large numbers in all the peripheral nerves when subjected to staining with methylene-blue borax, according to Sahli's method. The bacillus is cylindrical, rod-shaped, with round ends, about 1.2 micro-millimeters in length, without spores, or tendency to any particular form of aggregation. It is mostly found in the endo-neural lymph spaces surrounding the sheath of Schwann.

PSYCHIATRY.

The Psychology of Epidemics.—Every epidemic carries in its train curious exaggerations of many well-recognized characteristics, and these frequently call for appreciation and for treatment almost as much as the disease in which they originate. Perhaps one of the most striking of these mental perversities is to be found in the idea that the epidemic is to be treated by "common sense," or by nostra which have been largely advertised, or by specifics which are known to the laity mainly through their frequent mention in the daily press. Those suffering under this delusion feel that it is wholly unnecessary to seek skilled assistance, and they boldly dose themselves with remedies of whose power and properties they are absolutely ignorant. In Vienna it has already been found necessary to forbid the sale of antipyrine, except under doctor's prescriptions, as no less than seventeen deaths were attributed to stoppage of the heart's action owing to overdoses. The freedom with which the prescription of this remedy has been assumed by the public has long since been viewed with anxiety by the medical profession, and frequent warnings have already fallen upon deaf ears; and yet it is to be feared that if the epidemic of influenza should spread, many more examples of recklessness will have to be recorded. It is serious enough to cope with an epidemic and its sequelæ, without having matters complicated by ignorant

and reckless experimental therapeutics.—*Lancet*, Jan. 4, 1890.

The Characters of the Ocular Fundus During the Hypnotic State.—Messrs. Luys and Bacchi, of Paris, have been investigating the condition of the ocular fundus with the ophthalmoscope in patients who had been previously hypnotized, and their conclusions are recorded in a recent number of *La Presse Médicale*. Nine subjects, six females and three males, were successively submitted to ophthalmoscopic examination, the examination being undertaken during a period of catalepsy, of lucid somnambulism, and in the mixed condition of fascination. The normal state of each fundus was first carefully noted, especially the exact tint of the fundus, and the retina was observed to be divided into three concentric zones. The subjects of the investigations were then placed in a cataleptic state, and the fundus examined. The fullness of the retina was found to have suddenly disappeared. The discs were of a rose tint, the three concentric zones became mingled with one another, and at the same time the arteries and veins became more or less enlarged. This hyperæmic condition remained as long as the subject continued in the cataleptic state. The iris also was dilated, and almost insensible to light. The same features were observed to occur during the state of fascination. In the period of lucid somnambulism the changes were not markedly different, although the disc was less injected. The iris was also more responsive to light.—*Medical Press and Circular*, December 25, 1889.

EDITORIAL.

[*All unsigned Editorials are written by the Editor.*]

The Clinical Verification of Cerebral Localization.—Seguin, in *Sajou's Annual*, 1888, brings the clinical aspects and merits of this subject deservedly to the front, and while acknowledging due credit to physiological discovery he places the clinical and autopsic discoveries and proofs prominently before the profession, as they merit to be placed, as follows:

Whatever disputes may still go on between physiologists as to some of the centers in animals, their precise location, their *modus agendi*, etc., clinicians and practitioners have received only confirmatory evidence of the actual tangible existence of such centers in the human brain, and localization diagnoses are made with greater and greater positiveness.

* * * * * * * * *

Clinical observation and pathological data came first (Broca for speech-center, Hughlings-Jackson for a hand-center and general doctrine), the animal experiments, with detailed proofs, by Hitzig, Ferrier, and others long after; and the solid facts upon which we make our daily localization diagnoses have been patiently accumulated by pathologists, and would stand to-day supporting the doctrine of cerebral localization if not one animal's brain had been touched. Besides, in the case of the visual half center, human pathological facts have overthrown the results of experimentation (Ferrier's angular gyrus center) and have made us, for practical purposes, indifferent to the contradictory results of Munk and Goltz. It is safe to assert that every one of the so-called "centers" in the human brain have been determined empirically by *post-mortem* proofs, independently of experimental data. What animal experiments would have led us, for example, to locate the half-center for ordinary vision in the cuneus, the center for the leg in the paracentral lobule, and that for audited language in the left first temporal gyrus? In this department of pathology, medical science has been strictly inductive and sufficient unto itself, though receiving confirmatory evidence from the physiologist. The first (speech) and the last (visual) centers have been discovered by clinical and pathological studies.

To the glory of clinical medicine and its pathological proofs it is a fact that the great discoveries in cerebral

localization date from the clinico-pathological discussion which took place in the fourth decade of the present century between MM. Aubertin and Broca, before the Anthropological Society of Paris.

The whole article is one of Seguin's best productions, and illustrates many other interesting subjects in the neurology of the central nervous system.

Peripheral Nervous Diseases and General Neurosis is the subject of another equally meritorious contribution in *Sajou's* excellent *Annual*, by Drs. Charles K. Mills and James Henrie Lloyd, of Philadelphia.

These authors give the following terse and expressive description of the lately described malady, objecting to the term "peripheral," as generally applied to it, as unnecessary, because all nerves are peripheral:

> Multiple neuritis, or polyneuritis, is a disease in which many nerves are attacked by inflammation at the same time, the inflammation having a tendency to affect the nerves in a more or less uniform manner.

These neurologists present the discovery and literature of this affection in the following succinct manner:

> According to Buzzard, a description of typical multiple neuritis, observed in Paris, was given forty years ago by Graves, who also declared that the French pathologists sought anxiously, but in vain, to find the cause of the strange disease in the nervous centers; and Starr tells us that an American physician, Dr. James Jackson, of Boston, in 1822, painted a graphic picture of one of the forms of this affection. From time to time, cases of the disease have been reported under various names, and papers upon the subject have been written by Magnus Huss, Duchenne, Duménil, Leudet, Pitres, Jaccoud, Eichorst, Joffroy, Leyden, Lancereaux, Grainger, Stewart, Roth and others. The last three years, however, have been a season of great increase in our exact knowledge of the subject, and medical literature during this time has teemed with fruitful observations and investigations. The year 1887 shows an abundant literature; but, while many contributions have appeared in various languages, a few are pre-eminent because of their completeness or their originality. First among these stands the work of an American neurologist—the *Middleton-Goldsmith Lectures on Multiple Neuritis and its Relations to Certain Peripheral Neuroses*, by Dr. M. Allen Starr, which lectures were delivered under the direction of the New York Pathological Society, and have since been published in various medical journals. They constitute an exhaustive study of the subject up to the date of their delivery, and reflect the greatest credit on their author. By Dr. J. B. Duplaix the subject has been reviewed in a masterly manner; but, strange to say, we find scarcely any allusion in his paper to American work, although French, German, English and other

European authorities are copiously mentioned. Many valuable articles and notes of cases or groups of cases have also appeared in different languages—among others, in America by Chapin, Dana, Biggs and Folsom; in England, by Ross, Clarke, Edwards and Fawsitt; in Germany, by Thomsen, Kast and Laquer; in France, by Pitres and Vaillard, and others.

Beri-beri, commonly regarded as an endemic multiple neuritis, has also had, during 1887, a copious and interesting literature, at the head of which is an able monograph by Weintraub, of Holland.

The pathology is thus clearly given:

Pathology.—Theoretically, in considering the pathology of neuritis, it is possible to recognize several forms: thus, we may have (1) a perineuritis, the inflammation affecting solely or principally the sheath of the nerve; (2) a parenchymatous or degenerative neuritis, the nerve fibers themselves being involved; (3) an interstitial neuritis, in which the connective tissue between the nerve fibers is chiefly attacked; (4) a diffused neuritis in which all parts of the nerve bundle are more or less affected. The clinical distinction between perineuritis and the other forms of neuritis has not yet been clearly made. Possibly it is asking too much to attempt such a differentiation. The two forms of neuritis which seem to be universally recognized are the parenchymatous and the interstitial. The microscopical appearances observed in these forms of inflammation are well described by Starr, who also gives, by way of introduction to the pathology of multiple neuritis, an interesting account of the histology of nerve fibers, and also of the changes resulting from nerve degeneration artificially produced in animals.

Parenchymatous inflammation is probably simply degenerative. The myelin is absorbed and eventually the axis cylinder disappears, and finally, only an atrophied tube deprived of its original contents remains.

With reference to this parenchymatous inflammation, it is important that the appearances shown are identical with those seen in secondary degeneration of nerves after diseases of the spinal ganglion-cells, or after compression or local disease of the nerve trunks. This fact has led Erb, and we think with much show of reason, to argue that the nerve changes in this form of so-called multiple neuritis are really secondary to a primary affection of spinal trophic centers. Starr agrees with Strümpell and others in opposing this view of Erb, but Erb's hypothesis seems to us to have much in its favor. Starr holds that against the view that the nerve changes are secondary are the facts that the degeneration is usually limited to the distal portion of the nerves; that the sensory nerves are affected, centrifugal degeneration of these nerves from spinal lesion being unknown, and, that a parenchymatous neuritis has its parallel in other parenchymatous inflammations and primary scleroses. The one argument of the three which seems to us to have any weight is that which relates to the inflammation attacking sensory afferent as well as motor efferent nerves. We believe that, eventually, at least some of the cases which are now classed as multiple

neuritis of the parenchymatous variety will be relegated to the spinal cord; whether all such cases will be is, however, doubtful.

As to the forms of multiple neuritis which are classed as interstitial or diffused, little or no doubt can exist that they are true nerve inflammations. Here are to be seen inflammatory changes of the endoneurium and perineurium, with formation of new connective tissue, and destruction by compression of nerve fibers. "In this class," says Starr, "the mere inspection shows the nerve to have been the seat of pathological changes, for it is either congested, swollen and lacking in luster, or it is yellow and irregularly swelled by the accumulation of fat, or it is evidently reduced to a mere connective tissue strand."

Gombault has described a special form of neuritis, the so-called *segmental periaxillary neuritis*. It is important to notice this variety, as it is present in toxic neuritis from lead poisoning, diphtheria, alcohol and other forms of nerve inflammation with which we are concerned in the present paper. By inducing chronic lead poisoning in pigs, Gombault produced a parenchymatous neuritis, in which a segment lying between the two nodes of Ranvier was diseased, while the other sides of the nodes remained healthy. In two cases of alcoholic paralysis, according to Clarke, this condition was found by Drs. Dreschfeld and Grainger Stewart. Pitres and Vaillard have noticed a somewhat similar condition in the neuritis occurring after diphtheria. Hadden, Eichorst and other observers have found the change to be an interstitial neuritis.

The idiopathic, toxic, infectious and epidemic varieties are also well discussed. Mills himself, at the American Neurological Association, in 1887,

Presented notes of three cases with the typical symptoms of multiple neuritis, in which the history, or the results of treatment, or both, indicated a syphilitic origin of the disease. With reference to alcohol, he said that the cases of the same class clearly due to alcohol alone, presented almost identically the same clinical features as those shown by purely syphilitic cases. Purely alcoholic cases did not, however, respond so quickly to specific treatment, and sometimes would not respond at all to such treatment. During the last ten years he had seen at least a dozen cases similar to those detailed, the majority of which had recovered under specific treatment with the help of massage, electricity, tonics and time. Duplaix and others have shown that the nerves are frequently affected by syphilis; but in the majority of cases it is not with a neuritis that the clinician has to do, but with gummatous neoplasms, or with the lesions which result from compression by such neoplasms; nevertheless incontrovertible facts point to the existence of syphilitic neuritis. If paralyses of the cranial nerves, and particularly the motor nerves of the eye, are the consequence of such lesion, it may be that the same is true in some cases of so-called sciatica, and painful affections of other large nerves.

The occurrence of multiple neuritis in cases of tuberculosis, which these authors note is of great interest. In the wards of the Philadelphia Hospital, where tuberculosis in some form invades almost every

department, we have frequently seen evidences of the probability of this complication. Starr refers to cases of multiple neuritis reported by Joffroy, Eisenlohr, Strümpell, Webber, and Müller, in which the patient died of phthisis; also to cases of Oppenheim in which multiple neuritis was present in tubercular patients but went on to recovery; also in the course of cerebro-spinal fever or epidemic cerebro-spinal meningitis. That it does occur either as a part of the disease or as a complication, they do not doubt. During the month of February, 1888, in consultation with Dr. J. W. Dick, of Philadelphia, Dr. Mills saw a case in which the symptoms of multiple neuritis seemed to be combined with those of cerebro-spinal meningitis, also two similar cases with Dr. W. C. Cahall.

Mills has seen several cases of the acute rapidly progressive form of polyneuritis. In one, a young girl, the diagnosis of hysteria was made, the patient dying in about a week, having had the sensory, motor and other symptoms of multiple neuritis, and finally succumbing to paralysis of respiration. In another case the patient died after a painful illness of several weeks, the symptoms in general being those of a rapidly ascending paralysis. In this case several diagnoses were made by different practitioners, among others, acute locomotor ataxia, and anterior polio-myelitis. In a third case all the bulbar nerves were attacked in rapid succession, paralysis of the extremities occurring at nearly the same time, and the entire duration of the disease being only a few days.

Special causes to some extent impress peculiar features upon the symptomatology of multiple neuritis. In alcoholic multiple neuritis for instance, the patient frequently has a precedent history of gastric catarrh, tremor, sleeplessness, and erratic pains; sometimes of numbness and psychical disturbances. Not infrequently, as will be hereafter more fully shown, alcoholic cases present delusional insanity as a prominent complication. In lead neuritis the presence of a blue line or blue discoloration of the gums, and the tendency of the paralysis to attack certain muscular groups with greater virulence, others escaping partly or entirely, serves to give a special character to the cases. The tendency of the supinator muscle to be attacked last or not at all, and when attacked to regain its function first as the patient recovers, is a notable peculiarity. Cases due to arsenic, mercury, copper, bisulphide of carbon, etc., may or may not have special peculiarities dependent upon the effects of the poison upon other organs and parts. In multiple neuritis following diphtheria, scarlet fever, measles, and rötheln, the tendency to involvement of the muscles of the eye, palate, pharynx larynx, with or without more general paralysis, is well known.

This entire article, discussing as it does so ably, the observations of Kast, Duplaix, Pitres, Vaillard, Graves and others, with the writer's own observations and conclusions could be profitably placed in our pages, but for lack of adequate space.

The observations and conclusions of these writers,

though made in 1888, have still not been modified by later discovery. The whole paper is another bright gem in the neurological setting of *Sajou's* excellent *Annual.*

The above is part of a review of *Sajou's Annual of the Universal Medical Sciences*, inadvertently omitted from a previous number, and we take pleasure in placing it in our editorial pages because of the great merit of the subjects and the meritorious manner in which they have been treated.

Curability of the General Paralysis of the Insane.—Dr. A. Voisin, in *Bulletin Générale de Thérapeutique*,

Reports seven cases found in French literature of recovery from progressive paralysis, and adds thereto four observations by himself, described at length. These four patients presented pronounced symptoms of general paralysis (in one of these, however, affection of the speech was missing), and regained their health, the symptoms gradually disappearing after the lapse of several years. The first patient has been in perfect health since 1885, and occupies a high public office. The second patient has been well since 1880, and able to superintend his business, in which 300 men are employed. The third patient has completely recovered, notwithstanding a great misfortune in his family and great financial loss. (This patient was exhibited in the clinic as recovered.) The fourth case, a woman, had her health restored in 1878, a slight difference in the size of the pupils, however, remaining. In the two last cases it is not stated whether the "recovered" patients were again able to be actively employed in their business. In conclusion, Voisin urges by no means to omit a therapeutic effort in any case of dementia paralytica, but he does not say definitely that the favorable result in these four cases was due to the mode of treatment which he mentions, and which was formerly much in practice: blisters, the red-hot iron, cold baths and douches, and ergotine, in a dose not exceeding seven and one-half grains a day.

These results are in harmony with our own convictions and of our experience, previously expressed in these pages. Candor compels us to add, however, that one case which had apparently recovered of all symptoms and returned to business, after having had pronounced delusions of grandeur and speech embarrassment, has relapsed after eighteen months. The individual is now apparently in a hopeless condition of dementia.

Another, which had undoubtedly recovered, and so completely as to return to business, which he did prematurely against our advice, relapsed again and died demented.

Under judicious treatment these cases certainly do appear to recover and they might, oftener than they do, regain normal mental equilibrium, and remain so for more or less lengthened periods, if they did not sometimes permanently recover, if they were more hopefully, skillfully and persistently treated by the medical adviser, and kept under longer control after convalescence, by physicians and friends. At all events the early symptoms of this malady being largely those of high vascular excitement, a regulative and repressant plan persevered in, would seem to commend itself to the alienist having the patient's confidence, and that of his friends. They should not be abandoned to their fate by inaction based upon a hopeless prognosis, simply because we do not *know* that we can cure them, but on the contrary know from past experience that we are likely to finally fail. We can certainly materially restrain the brain-waste and the violence of the delusional action in most cases and entirely subdue it in some, and be more or less successful in all cases, except in their final stages.

I have known one general paralytic to become lucid enough to make a valid will, though he died of paresis; another to return to business, transacting it rationally enough for awhile, but soon relapsing by overwork into his former grandiose state, finally dying in an asylum. While another became a member of an important business company after his grandiose delusions had departed, continued in business in a rational way through two years, with some intervening treatment, and passed again into dementia paralytica.

Though the fate of the general paralytic is often sealed from the beginning, we should not let despair of recovery paralyze our efforts for the patient's restoration. There is probably a vascular stage amenable to medical management, if we could get medical control of our patients early enough, and we should hope when we get them in hand that that stage has not passed, and treat them accordingly, with all the benefit of the doubt. It is thus only, if ever, that we may get more hopeful results in this formidable and fatal malady of the brain.

Tenth International Medical Congress, Berlin, 1890, Section of Neurology and Psychiatry.—We acknowledge the receipt of an invitation to take part in its proceedings, which reads as follows:

In accordance with the resolution of the Ninth Congress held at Washington, the Tenth International Medical Congress will be held this year at Berlin, opening on the 4th of August, and ending on the 9th of August, 1890. The delegates of the German medical faculties and of medical societies of the German Empire, have elected us, as members of a sectional committee of organization. In this capacity we have the honor to cordially invite your participation in the proceedings of our section. We hope to enjoy the satisfaction of welcoming large numbers of our colleagues to Berlin, and also of seeing our section meetings numerously attended. We append the programme of our section, as far as hitherto arranged, with the request that any further proposals, as well as offers of addresses, papers, or demonstrations, may be sent in with as little delay as possible.

With the hope that the meetings of the section may prove interesting in themselves and useful to the advancement of science,

We remain most respectfully,

THE COMMITTEE OF ORGANIZATION
For the Section for Neurology and Psychiatry.

[All communications or enquiries regarding the business of the section must be addressed to Dr. H. Laehr, Berlin, Zehlendorf. Other communications and enquiries of a general character, must be directed to the General Secretary of the Congress, Dr. Lassar, Berlin, N. W., Karlstr. 19.]

The preliminary programme of the section will be as follows:

1. Surgery of the Central Nervous System. Report: Mr. Vict. Horsely, M. D., Professor, of London.
2. The Traumatical Neuroses. Report: Mr. Schultze, M. D., Professor, of Bonn.
3. The Pathological Anatomy of Dementia Paralytica. Report: Mr. Mendel, M. D., Professor, of Berlin.

In connection with the Tenth International Medical Congress to be held in Berlin, between the 4th and 10th of August, there is to be an International Medical and Scientific Exhibition. The exhibits will be of an exclusively scientific nature, as follows:

New or improved scientific instruments and apparatuses for biological and strictly medical purposes, inclusive of apparatuses for photography and spectral analysis, as far as applicable to medicine.

New objects and preparations in pharmacological chemistry and pharmacy. New foods.

New or improved instruments subservient to any of the departments of medicine, including electrotherapy.

New plans and models for hospitals, convalescent homes, and disinfecting and bathing institutions and

apparatuses. New arrangements for nursing, including transportation, baths, etc. New apparatus in hygiene.

Applications or inquiries inscribed "Ausstellungs-Angelegenheit," and accompanied with a printed card, containing the name and address of the firm thus applying, ought to be directed to the Secretary-General, Dr. O. Lassar, Carlstrasse, No. 19, Berlin, N. W., Germany.

The Alternation Psychosis of Suppressed Epilepsia.—Alienists have long been familiar with the psychical supplement of epilepsia gravior. Writers have called its different phases the psychical equivalent or psychical epilepsia, epileptic automatism, the psychical trance of epilepsia, etc.

It is not uncommon to see among the epileptics in an asylum for the insane an anticipated attack of *grand mal* supplanted, ushered in or followed by an attack of blind maniacal furor, automatic and delusional in character. Attacks of *petit mal*—mere transitory psychical seizures of momentarily suspended consciousness, or transient automatic movement natural to the individual, but unnoted by him at the time, signal the passage of an epileptic wave of molecular disturbance over the cerebral cortex, a momentary arteriole spasm suddenly cuts off in one part or flushes in another of the cerebrum, a limited psychical area or a single center of motor impulse and the beginning and the end of a *petit mal* seizure is recorded.

The chief alternative psychosis of epilepsia besides insanity and the epileptoid seizures is its automatisms. Procursive epilepsia is an epileptic automatism but not purely so, for it is usually followed by convulsion and comatose unconsciousness. We have seen one instance of a supplemental procursive epilepsia in which the automatism displayed itself in the acts of resistance, fretting, crying and disrobing and then dressing again, by which time the paroxysm would usually pass off.

True procursive epilepsia, as we have elsewhere observed, is a motor automatism taking the place of the spasm, a motor paroxysm, usually followed, however, by the characteristic convulsion and unconsciousness. I have never seen true procursive epilepsy without this sequel. This epilepsy is common in epileptic cats.

Many cases of insanity attributed in the recent literature to immoderate use of bromide, are only indirectly so, being the result of abortive medicinal suppression and the

substitution of psychical perversion for the true epileptic convulsion. These are the true psychical alternates of epilepsia gravior. Hughlings Jackson was the first to elucidate these interesting phases of epileptoid disease, and all alienists are familiar with the abnormal psychical equivalents of epilepsia gravior as they are especially to be seen in lunatic asylums. Epileptoid disorder is a field of medical observation that has yet much of instruction in it to the physician, and research in it will well repay others than the neurologist. To stimulate our interest we have only to remember that besides Cæsar and Cowper, Mahomet and Napoleon, many others, eminent in history, were victims of epilepsia or epileptoid disease, and that no walk of life escapes it.

To acquire a fuller comprehension of the many possibilities of the protean phases of epileptiform disease, we have only to consider that it may stop short in an aborted sensory aura, be transformed into a motor or psychical automatism, or terminate or alternate with delirium, paralysis or dementia more or less complete in their phases.

Readers of the ALIENIST AND NEUROLOGIST who are not expert alienists will find epilepsia as interesting and far-reaching a study in one direction as syphilis is in another.

The Necessity for Reform in Prescribing, indicated according to the *Times and Register*, Philadelphia, December 7, 1889. The report of the *New York Analyst of Drugs* shows that the chances for getting drugs of good quality on prescription is 43.8 per cent.; fair, 17.4; inferior, 26.; NOT AS CALLED FOR, 11.6; excessive strength, 1.2. And the *Journal of the American Medical Association*, Chicago, November 16, 1889, informs us that Chas. Chadwick, Ottis R. Wyeth, Louis A. Schoen, Geo. J. Schoen, Chas. F. Hermann, Geo. Eyesell, and Horace L. Roy, druggists of Kansas City, Mo., were recently fined $500 each and costs for counterfeiting a preparation known as Bromidia.

With these facts before the profession, special scrutiny of drugs would seem to be indicated, and they suggest also the propriety of office-dispensing of conveniently dispensable forms of medicine when practicable, such as the soluble tablets, pills and granules.

There is room for enterprising drug firms, catering to the wants of medicine, to prepare in small packages,

readily dispensable formulæ, even the liquid and powder forms as well as the solids.

Pharmacy and pharmacists have not always appreciated the aid rendered them by the medical profession, and they have not always looked to the interests of their friends, the physicians, as they should.

Patients must have medicines in convenient and palatable forms, of good quality, at moderate prices, and they must be given the benefit of the market decline in drugs just as if they knew the precise value of what they get and when to demand reduction, just as in other lines of business; if not, dispensing pharmacy will become largely an obsolete business.

The "Society for Psychical Research" will be officered for 1890 by Professor Henry Sedgwick, Trinity College, Cambridge, as President; Right Hon. A. J. Balfour, M. P., F. R. S.; Right Rev. Bishop of Carlisle; Professor W. James, Cambridge, U. S. A.; S. P. Langley, Smithsonian Institution, Washington, U. S. A.; Right Rev. Bishop of Ripon, and others, as Vice-Presidents; with Professor J. C. Adams, F. R. S.; Lord Rayleigh, F. R. S.; C. Lockhart Robertson, M. D.; Professor J. J. Thomson, F. R. S., and others, in the Council. Honorary Members: Professor J. C. Adams, LL. D., F. R. S.; William Crookes, F. R. S.; the Right Hon. W. E. Gladstone, M. P.; John Ruskin, LL. D., D .C. L.; Lord Tennyson; Alfred Russel Wallace, F. R. G. S.; G. F. Watts, R. A. Among the Corresponding Members are Professor Bernheim, Hôpital Civil, Nancy; Professor H. P. Bowditch, M. D., Harvard Medical School, Boston, U. S. A.; Dr. Féré, 37 Boulevard St. Michel, Paris; Professor Stanley Hall, Clark University, Worcester, Mass., U. S. A.; Mahádeva Vishnu Káné, B. A., Dharwar, Bombay; Professor Kovalevsky, The University, Kharkoff, Russia; Professor, Th. Ribot, Office of the *Revue Philosophique*, Paris; Professor Charles Richet, 15 Rue de l'Université, Paris; Baron A. von Shrenk-Notzing, Klenze-Strasse, 64 Munich; Professor N. Wagner, Imperial University, St. Petersburg. Its foundation and objects are set forth in a recent circular sent to us, as follows:

"The Society for Psychical Research was formed at the beginning of 1882, for the purpose of making an organized and systematic attempt to investigate various sorts of debatable phenomena which are *prima facie* inexplicable on any generally recognized hypothesis. From the recorded testimony of many competent witnesses, past and present, including observations recently made by scientific men of eminence in various

countries, there appears to be, amidst much illusion and deception, an important body of facts to which this description would apply, and which therefore, if incontestably established, would be of the very highest interest. The task of examining such residual phenomena has often been undertaken by individual effort, but never hitherto by a scientific society organized on a sufficiently broad basis. The following are the principal departments of work which it is proposed to undertake:

"1. An examination of the nature and extent of any influence which may be exerted by one mind upon another, otherwise than through the recognized sensory channels.

"2. The study of hypnotism and mesmerism; and inquiry into the alleged phenomena of clairvoyance.

"3. An inquiry as to the existence of relations, hitherto unrecognized by science, between living organisms and magnetic and electric forces, and also between living and inanimate bodies.

"4. A careful investigation of any reports, resting on strong testimony, of apparitions occurring at the moment of death or otherwise, and of disturbances in houses reputed to be haunted.

"5. An inquiry into various alleged physical phenomena, commonly called 'spiritualistic.'

"6. The collection and collation of existing materials bearing on the history of these subjects.

"The aim of the Society is to approach these various problems without prejudice or prepossession of any kind, and in the same spirit of exact and unimpassioned inquiry which has enabled Science to solve so many problems, once not less obscure nor less hotly debated. The founders of the Society have always fully recognized the exceptional difficulties which surround this branch of research; but they, nevertheless, believe that by patient and systematic effort some results of permenant value may be attained.

"Investigating Committees (with the exception of the Literary Committee) are not appointed by the Council; but any group of Members and Associates may become an Investigating Committee, and every such Committee will, it is hoped, appoint an Honorary Secretary, and through him report their proceedings to the Council from time to time.

* * * * * * * * *

"The Council will be glad to receive reports of investigation from individual Members or Associates, or from persons unconnected with the Society.

* * * * * * * * *

"Any communications intended for the Literary Committee should be addressed to Frederic W. H. Myers, Esq., Leckhampton House, Cambridge; or in America, to Richard Hodgson, Esq., 5 Boylston Place, Boston, Mass.

* * * * * * * * *

"A Monthly Journal (from October to July inclusive) is also issued without further charge to Members and Associates. The Journal contains evidence freshly received in each branch of the inquiry, which is thus ren-

dered available for consideration, and for discussion by correspondence, before selections from it are put forward in a more public manner.

"The Council, in inviting the adhesion of Members, think it desirable to quote a preliminary note, which appears on the first page of the Society's Constitution.

"['NOTE.—To prevent misconception, it is here expressly stated that Membership of the Society does not imply the acceptance of any particular explanation of the phenomena investigated, nor any belief as to the operation, in the physical world, of forces other than those recognized by Physical Science.']

* * * * * * * * *

"American Associates are admitted on payment of three dollars yearly (payable to Mr. Hodgson), and are entitled to the free receipt of the ordinary published Proceedings of the Society and of the monthly Journal. When visiting England, they are entitled to attend all meetings of the Society, except such as are convened for business purposes only.

"Ladies are eligible to membership.

"Members and Associates are entitled to purchase the periodical publications of the Society, issued previous to their joining it, and also additional copies, at half their published price."

Gynecology and Neurology in Accord.—It is gratifying to now record the fact that at last gynecology and neurology are in accord, and that henceforth woman's uterus and uterine appendages are to be treated for her uterine diseases alone, while the woman herself is to be treated in a rational way as men are, for her neuroses, save and except where they are peculiarly and exclusively gynesiac, and we record with approbation the following evidences of return to neurological truth. They are the neurological conclusions of a gynecological writer of distinction, finally reached, in a recent article in the *Philadelphia Medical News*, entitled "The Abuse of Uterine Treatment Through Mistaken Diagnosis," by Dr. Wm. Goodell:

In the first place, always bear in mind what another has pithily said, that 'woman has some organs outside of the pelvis.' 2d, Each neurotic case will usually have a tale of fret or grief, of cark and care, of wear and tear. 3d, Scant, delayed or suppressed menstruation is far more frequently the result of nerve-exhaustion than of uterine disease. 4th, Anteflexion, *per se*, is not a pathological condition. It is so when associated with sterility or with painful menstruation, and only then does it need treatment. 5th, An irritable bladder is more often a nerve symptom than a uterine one. 6th, In a large number of cases of supposed or of actual uterine disease which display marked gastric disturbance, if the tongue be clean, the essential disease will be found to be neurotic, and it must be treated so. 7th, Almost every supposed uterine case, characterized by excess of

sensibility and by scantiness of will power, is essentially a neurosis. 8th, In the vast majority of cases in which the woman takes to her bed and stays there indefinitely, from some supposed uterine lesion, she is bed-ridden from the brain and not from her womb. I will go further, and assert that this will be the rule, even when the womb itself is displaced, or it is disordered by a disease or by a lesion that is not in itself exacting or dangerous to life. Finally, uterine symptoms are not always present in cases of uterine disease. Nor when present, and even urgent, do they necessarily come from uterine disease, for they may be merely nerve-counterfeits of uterine disease.

These are the nervous affections which gynecology has so long and so persistently mistaken for uterine reflexes. But the day of gynecological error is waning, a light shines from behind the cloud. It is in the rays of the neurological sun which, through clouds, there is just being perceived, the day dawns for woman's emancipation from the misery of medical error. In the newly revealed neurological light, a true neurological gynecology is born into the family of clinical and therapeutic science.

Vicious Therapeutics.—A recent number of the *Medical Record* contains sevaral cases reported by Dr. E. P. Fowler, of neurotic mammary tumors removed by "uterine massage." An orgasm described as an epileptoid phenomenon, was produced by the manipulations.

This practice is vicious in the extreme and absolutely unwarrantable. It degrades both physician and patient. The bromides, cerebro-spinal galvanization, arsenic and tonics with proper psychical impression and sometimes change of environment, have always, in our experience, removed these "tumors" and the fears that came to the patient with them. When, oh! when, will this needless and harmful handling of the female genitalia cease?

Dr. Bancroft Stricken with Paralysis while Acting as Chairman.—Dr. J. P. Bancroft, of Concord, N. H., was the presiding officer at a meeting of the New England Psychological Society, when he noticed a gradual loss of power creeping over his left side. He had the fortitude to remain in the discharge of his duties and put the motion to adjourn, although his fellow-members were, at that very moment, assisting in maintaining his erect posture. The *Boston Medical and Surgical Journal* takes pleasure in reporting that Dr. Bancroft has not been seriously paralyzed, but has manifestly improved in muscular power since the time of the attack.

State Care of Pauper Insane.—We clip the following from an editorial item in the daily *New Yorker Staats-Zeitung, of March* 21, 1890:

"The bill providing for the State care of the pauper insane of all counties but those which have adequate and well-ordered hospitals for patients of this class, was yesterday made the special order in the Assembly at Albany, and was passed by sixty-nine votes against forty-nine. The opposition was determined, and the forty-nine members who, unmoved by considerations of philanthropy, were not ashamed to vote to continue the inhuman county system, felt their defeat the more keenly because they had rocked themselves in confident but mistaken security.

"The unanimous adoption in the Senate of this manifestly right and necessary bill, can be expected with greater certainty, inasmuch as its members stand less in fear of small politicians and contractors, and we make bold to assume, are infused with better enlightenment and corresponding philanthropy, than their colleagues in the lower branch of the Legislature, Three years have been spent by friends of the pauper insane, in attempts to rescue them from the neglect and brutality of counties wherein no sufficient means existed, either for treating the maladies of those who offer a hope for cure, or of housing those whose cases are hopeless. The combat was waged alike in the name of humanity and the honor of the foremost State of the Union. The incarceration of these distressed creatures in poorhouses; their abandonment to the greed and heartlessness of petty contractors and local politicians; their deprivation of the humane resources for their cure or comfort proffered by every well-equipped and ably-administered public hospital for the insane, is a stain on the escutcheon of the State, and a belying of the proud device, '*Excelsior.*'"

Malted Milk.—"Doctor, if you have any case in which nutrition, in the most easily assimilable form, is a *sine qua non*, send a postal card to the Malted Milk Co., Racine, Wis., and ask for a sample of Malted Milk. You will be pleased with its effect."

Resignation of Dr. W. W. Hester.—The board of trustees of the Southern Illinois Hospital for the Insane have accepted the resignation of Dr. Hester, and appointed to the vacancy Dr. A. B. Beattie, of Red Bud. Dr.

Beattie was a prominent candidate for the superintendency. At that time he was very favorably spoken of, both professionally and personally; and there is excellent reason for believing that the appointment is wisely made, and that the doctor will prove a valuable and an efficient assistant.

The resolutions passed on the occasion of Dr. Hester's resignation are a deserved compliment. They are as follows:

Whereas, Dr. W. W. Hester, first assistant physician, has found it to his advantage, in his judgment, to sever his connection with this hospital, this being the twenty-fifth anniversary of his hospital service, and having been over ten years officially connected with this institution, faithfully discharging the duties of his office. Therefore, be it

***Resolved*, That we regret the circumstances making, in his judgment, his resignation necessary, and that our thanks are due, and hereby heartily tendered him for the manner in which he has so faithfully served the institution, and that he has our best wishes for his future happiness and prosperity.**

***Resolved*, That a copy of these resolutions be spread on the records of the hospital, and a copy be furnished Dr. Hester.**

Signed,

E. H. Finch,
James Bottom,
W. H. Boicourt,
Trustees.

Hospital for Insane, Anna, Ill., March 6, 1890.

"The Medical Mirror," whose coming accouchment into the journalistic world has been before announced, is born, at full term, reliable and vigorous.

The promise of our well-known medical *confrére*, who in advance acknowledged and proclaimed its paternity, has been fulfilled. The wise men of the East, West, North and South who have eagerly watched for its coming, are well pleased with its appearance and promise, as we judge from what our contemporaries journalistic have to say about it.

The best judges agree in the fact that the new-comer has already proven its capacity to live in the vigorous, hustling world of live journals. Those who may have prophesied or feared a still-born infant are disappointed. It is neither limp nor lame, but kicks and strikes vigorously in the right direction. It is sound of limb, without congenital blemish, and shows already precocious powers of brilliant medical reflection.

It is a large, broad, rosy, vigorous, bouncing boy already, of which neither papa nor the profession need be ashamed. It will prove a credit to its paternity, a joy to its friends and the pride of its place of nativity, St. Louis. It bears a good name and an honorable parentage. A glorious destiny is before it. We take pleasure in welcoming it to the journalistic fold it is born to live in.

A Teutonic Blunder.—If it be true that the University of Berlin has declined to allow American graduates of medicine to matriculate for graduation there, our German brethren have made a grave mistake. The following extract, from the *Kansas Medical Index*, will show how one, at least, of our contemporaries receives the announcement:

> American physicians would be decidedly better and more useful practitioners if they never saw the inside of a German medical college. Practically speaking, men educated in America are much better qualified than the German student, who is well educated in but three studies —the microscope, the germ, and cellular pathology. The American doctor, like the average American in other avocations, has no peer in any European country. The American student having the time and money to spend, can acquire more useful information in this country, in the same length of time, than he can in Germany. * * * * If closing the doors of the Berlin University against our students of medicine will serve any useful purpose, it will be decidedly in favor of our graduates in medicine by keeping them at home.
>
> We have been in Europe three times, and therefore should be competent to judge of the clinical advantages compared with what we have at home, and feel certain in the opinion that clinical instruction is quite as well given at home as it is abroad, and with less ostentation and bluster.

We do not, however, entirely concur with the *Index*, especially in the first paragraph.

Vertebral Artery Ligation Useless for Epilepsy.—Dr. Alexander, devisor of this operation, has finally ascertained that it is valueless and that it predisposes the epileptic to undue mental disturbance. The operation from the outset has been denounced by the majority of neurologists. The *Medical Standard*, in 1887, cited one instance where persistent melancholia resulted from it. The usual failure of the enthusiast to recognize *petit mal*, was the cause of the temporary boom the operation enjoyed. History repeats itself in the disuse of this procedure, which

would not have come into prominence had the originator had a close acquaintance with epilepsy.—*Medical Standard.*

[This operation, like compression of the carotid, is not founded in common sense or based upon either the physiology or pathology of epilepsy, so far as they are known. Epilepsy is certainly not due to excessive cerebral blood-pressure. The *Standard* is correct in our judgment.]

Association of Medical Superintendents of American Institutions for the Insane.—Are you a member of the Association? If so, this is for you:

BUFFALO, N. Y., March, 1890.

DEAR SIR:—The next meeting of the Association will be held at Niagara Falls, on the 10th of June, 1890. The Committee of Arrangements desire to make this a success and invoke your assistance.

Will you furnish a paper upon any subject connected with, or kindred to our specialty? If you have written before that is one reason why you should write again. If you have never presented a paper to the Association, that is a stronger reason why you should do so now. Your paper may be short and practical, or it may be longer and more philosophical. In any case you will have an opportunity to be heard. Do not fail to embrace it.

Please write to the secretary of the committee not later than May 1st, stating whether you will furnish a paper, and if so, the title of it, and its probable length. A full attendance, an interesting discussion and a good time is desired, and you can assist us to accomplish this.

J. B. ANDREWS, Secretary.

Possible Light on the Pathology of Morbus Thomsenii.—A recent operation on the brain of a patient whose symptoms were chiefly those of Thomsen's disease, viz., volitionally excitable and volitionally overcome spasm with permanent foot retraction, referable to involvement of the top of the motor area was operated upon, over the lower portion of the ascending parietal convolution, over the platysma myoides center, at the instance of Dr. L. Bremer, with the result, temporarily at least, of marked improvement in the symptoms. A subcortical angiomatous growth was found and reported to the St. Louis Medical Society. It is to be regretted that the motor area was not operated upon higher up, but as it is, the case promises to throw some light on the pathology of Thomsen's disease, throwing out the muscular lesion theory and locating its casus morbi in irritation and pressure of the pyramidal tracts.

Notice to Publishers.—This journal will not send *marked* copies calling attention to reviews. All reputable publications sent us will, however, receive such notice as they may seem to merit in our review pages or elsewhere, but publishers will please not impose upon us this needless extra labor which, though insignificant in individual cases, would be somewhat onerous in the aggregate.

All reputable medical publication houses sending us suitable books for review, will receive, at least, the number of the journal containing the reviewed book. The leading well-known publishing houses are regularly on our list, and ought to get every number of the ALIENIST AND NEUROLOGIST.

A Creditable Appointment.—Dr. H. J. Brooks, of Dixon, Illinois, appointed to the position of Superintendent of the Insane Asylum of Northern Illinois, at Elgin, made vacant by the death of Dr. E. A. Kilbourne, is a man in every way qualified for that important position. His culture and thorough practical experience eminently entitle him to the place, and we bespeak for the institution an able supervision under his administration.—*Journal of the American Medical Association.*

Back Numbers Wanted.—The subscription price will be remitted on receipt of any of the following numbers: January, 1881; July, 1882; April, 1889; April, 1884.

CORRESPONDENCE.

HEREDITARY SPECIAL AMNESIC APHASIA.—The following, from the talented editor of the *St. Louis Medical and Surgical Journal*, will be read with interest. It is sufficiently explanatory:

FRIEND HUGHES:

The enclosed is more fitted for your journal than for ours. The incident narrated was witnessed by myself, and will doubtless be recalled by many old Mobilians who were "cotemporaries" of your humble servant at the Dauphin-Way Academy, and all of whom, I will undertake to say, will recall "Old Barbour Lewis" more vividly by the lickings he gave them than by anything he ever taught them. Yours,

F. L. JAMES.

CURIOUS MENTAL TRAIT.—*Science* says "A correspondent of the German Anthropological Society tells of a farmer by the name of Löwendorf who had a peculiar habit of writing 'Austug' for 'August,' his Christian name. Some years later he was inspecting a school, and heard a little girl read 'leneb' for 'leben,' 'naled' for 'nadel,' and the like. Upon inquiry he found that her name was Löwendorf, and that she was the daughter of his former friend, the farmer, now dead. This defect was noticeable in the speech and writing of both father and daughter. It appeared in the father as the result of a fall that occurred some time before the birth of his daughter."

All the old Mobilians will remember the Dauphin-Way Academy, the head of which, some thiry-five or forty years ago, was Barbour Lewis, a competent teacher, in some respects, but a man of ungovernable temper. Among the pupils in one of the rooms was a little girl, the daughter of a German butcher named Haller or Huller. In spelling certain words she betrayed the trait above spoken of, in a remarkable manner. On one occasion she was told to spell "little," and spelled it "lit-let." She was told to spell it over, and again made the metalepsis. This was repeated several times, and the teacher (a young woman), thinking the child was "merely stubborn," reported her to principal Lewis, who took her in hand.

There is not a boy or girl living to-day who was in that room who has forgotten, or ever will forget, the brutal and persistent punishment that Lewis inflicted on the little girl for hours in the vain endeavor to make her say aught else than "l-i-t *lit*, l-e-t *let*, litlet." Even Lewis finally got disgusted with himself and gave up the attempt to coerce her.

WESTERN HOSPITAL FOR THE INSANE,

BOLIVAR, TENN.

The Western Hospital for the Insane was opened for the reception of patients on November 22nd, 1889. Since that time two hundred and twenty nine (229) have been received. One hundred and fifty-six (156) of these were transferred from the Central.

Dr. W. M. Wright, of Carroll Co.; A. W. Brockway, of Haywood; Col. John R. Godwin, of Shelby; J. A. Wilkes and Austin Miller, of Hordemon, compose the Board of Trustees.

J. B. Jones, of Carroll Co., who was Superintendent of Construction, is Superintendent. John P. Douglas, of Shelby Co., is Assistant Physician.

The usual disadvantages and inconveniences incidental to the opening of an unfinished and partially furnished institution were experienced, but upon the whole, the work has been satisfactory.

The building is now completed, well furnished, and the force well disciplined.

The insane from the county hospitals in the Western Hospital District have been gathered in. The opening of this institution marked an era in the civilization of the State, of which all humanitarians are justly proud, for now the combined capacity of the three institutions of the State is ample to accommodate all its insane.

IN MEMORIAM.

Dr. Charles Whittlesey Stevens was born June 16, 1817, in Pompey, Onondaga County, N. Y. He was of Welsh and English ancestry. He received an academic education in his native town, and taught in the "country district" schools to obtain money to fit himself as a civil engineer. He came West in 1839, and finding his intended profession overcrowded, he began the study of medicine in the office of Dr. George Rogers, in Rushville, Ill. In 1840, he came to St. Louis and attended lectures at Kemper College, now known as the Missouri Medical College. He graduated with honors in 1842, receiving his diploma from Rev. E. Carter Hutchinson, the college President. He settled in St. Louis to practice his profession, and remained here. He soon acquired a paying practice, and in 1844, was elected demonstrator of anatomy in the medical college where he graduated. In 1849, he resigned this position to accept a similar one in the St. Louis Medical College. He was elected to the general, special and surgical anatomy professorship of the same institution in 1855, and after visiting the hospitals of Europe, returned and delivered able lectures during the thirteen years that he held this chair. In 1868, Dr. Stevens resigned his professorship to take charge of the St. Louis County Insane Asylum. He had already been a member of the Board of Managers of the Missouri State Lunatic Asylum for some years. Before beginning his duties he visited the great asylums at home and abroad, and his knowledge gained there assisted him in making the institution a model one from the start. In 1872, he resigned the position of superintendent of the asylum and returned to general practice in this city, where he gave much of his time to treating insanity cases as a specialty. He was often called as an expert in medico-legal trials where the plea of insanity was urged. He was also connected with the educational institutions of St. Louis, having served two terms in the Board of Directors of the Public Schools. He was one of the corporators of the St. Louis Academy of Sciences,

and the rare fossil known as *Bos Cavifrons*, an extinct species of the ox, is one of his contributions to its cabinet. He was a Union man during the war, and served four months as Post Surgeon at Pilot Knob, several weeks at the siege of Corinth, and then visited the hospitals near Vicksburg. In 1861, he was appointed Coroner, to serve out an unexpired term. In 1879, he was elected President of the St. Louis Medical Society. From November, 1883, to July, 1886, he was again Superintendent of the St. Louis County Insane Asylum. Since then he has devoted himself to private practice.

He was a conscientious and studious physician, an alienist of no mean ability, a kind husband and father, an upright and highly honorable and honored citizen, and sincere and faithful to his friends. The humane and humanitarian element and the scientific spirit largely predominated in his character. We shall ever kindly cherish his memory and remember with gratitude his fidelity to our welfare in our earlier days. He taught the editor of this journal anatomy and served with him as an associate member of the Board of Managers of the Missouri State Lunatic Asylum and always sustained him in the arduous duties of the asylum superintendency.

He was an ardent lover of his fellows. He loved nature and worshipped at her shrine. He loved the poets Shelley, Schiller, Shakespeare and Byron. Hugh Miller, Huxley, Darwin, Spencer and Owen were the books beside the poets and those of psychiatry and his special professional studies, which he loved most. He was prone to look at the bright side and the beautiful and good in mankind, and his faith in the justice and goodness of God was implicit. He died as he lived, serene, confident and hopeful. His last illness was pneumonia, following an attack of la grippe. He was incinerated in accordance with his previously expressed wishes, in the St. Louis crematory. He sleeps his last sleep and sleeps well. Peace to his honored ashes.

PROFESSOR LEIDESDORF.—The *Journal of Mental Science* condenses from the notice written by Professor Wagner in the *Allgemeine Zeitschrift für Psychiatrie*, the following account of the life and recent death of the late eminent Austrian alienist:

"Dr. Max Leidesdorf, late Professor of Psychiatry in

the Medical Faculty of Vienna, and an Honorary Member of our Association, died Oetober 9, 1889. He stood in the foremost rank of clinical alienists in Austria. Born in Vienna in 1816, he studied physic, and after his medical education visited France and England. Having graduated in Bonn, he soon afterwards took charge of a private asylum in St. Petersburg, but ultimately returned to Vienna. Leidesdorf appears to have had to struggle with limited means, and was without any social advantages in his professional career. His enormous energy, however, overcame every difficulty. For thirty years he resided in Vienna, and in association with Dr. Obersteiner, sen., he directed the private asylum at Döbling, founded by Dr. Goergen, whose institution was well known. Under Leidesdorf it flourished greatly. In 1866 he was appointed to the Chair of Psychiatry in the Vienna University, and attained a gold medal for art and science. In 1871 a Clinic in Medical Psychology was established in Vienna, but Leidesdorf failed to obtain the post. Resignation was not, we are told, his *forte*, and in the following year he was rejoiced to obtain the possession of rich clinical materials, and after Schlager had departed he was made director of a general hospital in Vienna for the observation of mental disorders.

In 1875 he at last became clinical Teacher of Psychiatry, for Professor Meynert showed that this was misplaced in the general hospital, and ultimately a special ward for observation was placed at his disposal in the public asylum for Lower Austria. So at last he obtained the object of his wishes, but this success was not in unmixed pleasure, as he had much to put up with during the first few years, as Meynert had before him. His conciliating character enabled him to survive all his difficulties, and at last tranquillity came. He could look back upon an honest career of work, and only one care disturbed him—as he, after thirteen years of labor, was compelled, through sickness, to retire from his post, to the great grief of his friends and scholars—whether the clinic would be maintained at Vienna, where alone of all German universities there were two chairs of psychiatry. He hailed the appointment of Krafft-Ebing with great satisfaction, for he was then satisfied that his clinic would be continued. Leidesdorf could not follow in the footsteps of Heinroth and Idler, but, on the contrary, recognized the superiority of Griesinger's teaching. What Skoda was to Medicine in general he was to Medical Psychology. He wrote many

valuable articles. Among these were "Insanity and Lung Disease," "On the Causes of Insanity," "On the Condition of the Brain in the Primary Forms of Insanity," "The Sympathy Between the Brain and the Nerves of the Body in Insanity," "Chorea Minor in Its Relation to Psychical Disorders," "Brain Syphilis in Relation to Mental Disorders." In 1860 he published "Pathology and Treatment of Mental Disorders," and in 1865 his "Manual of Insanity."

Leidesdorf was free from all bombastic rhetoric; he spoke easily, however, and he was an eminently practical teacher. As Professor Wagner says: "Er war mit Leib und Seele Lehrer."

He was consulted in regard to the mental condition of the Sultan Murad, and subsequently he had under his care at Döbling the daughter of the King of Denmark and sister of the Empress of Russia, the Princess Thyra of Cumberland. To his personal influence he owed a great part of his success. He had a happy talent of pleasing the lowest and highest with whom he associated, and he knew how to employ exactly the right word and tone with others. The poorest among his patients felt as if his good-will and attention were concentrated upon him. In spite of his age and severe attacks of illnesss, Leidesdorf was wonderfully brisk to the end of his life. He suffered for two years untold pain, so that death at last came to him as a long desired release from suffering.

Dr. Chas. H. Nichols was born in Maine, October 19, 1820, and died at Bloomingdale, New York, December 17 of last year, shortly after his return from Europe, whither he had been on a business mission for his hospital.

He was a graduate of the University of Pennsylvania, and began his medical life as assistant physician to the New York State Asylum, under the distinguished Dr. Amariah Brigham. Soon after he was appointed Superintendent of Bloomingdale, and in 1852 he took charge of the Government Hospital, at Washington, which is his monument, it having been constructed according to his plans and under his supervision. He was proud of St. Elizabeth (the name of the location of the Government Hospital), and we remember the peculiar enthusiasm of Dr. Nichols soon after its completion, when upon our

visit there, he pointed out the distinguishing features of his favorite hospital, especially the enthusiasm and pleasure he displayed in regard to the separate building for the colored insane.

He was an honorary member of the British Medico-Psychological Association and Superintendent of the Bloomingdale Asylum at the time of his death. At the latter place the funeral services took place. His remains were buried in Washington.

Dr. Nichols was a faithful, conscientious and competent practical alienist, respected by the profession and endeared to his patients and friends. He never endeavored to shine as a brilliantly scientific alienist, but his scientific acquirements were of no mean order, and he filled the measure of his ambition in a useful life in which he accomplished a good and great work for the advancement of the cure and the care of the insane of his adopted State, and the two institutions with which he was so long, so favorably, and so prominently identified.

Dr. Edwin A. Kilbourne, who died of paralysis, at Elgin, Illinois, February 27th last, at the age of fifty-three years, was a native of Vermont. At the beginning of the late war he was a student of medicine. Enlisting in the Union army he rose through meritorious service to the rank of captain, but was obliged to leave the service on account of failing health. Resuming his medical studies, he graduated as a physician at Ann Arbor, Michigan, subsequently taking a degree from the College of Physicians and Surgeons of New York, and serving as assistant physician in Blackwell's Island Hospital for the Insane.

About 1872, he was called to take charge as superintendent and physician of the State Hospital for the Insane at Elgin, Illinois, which position he filled continuously to the time of his demise.

Dr. Kilbourne was a cultivated, genial, Christian gentleman and a worthy and skillful physician, who filled the position he occupied with honor to himself and credit to the State and profession. As a practical alienist, he was often called into the courts to testify in important medical-legal cases involving questions of psychiatry, and his testimony as an expert was always clear and forcible. Having been summoned to testify with him in several important medico-legal causes in Northern Illinois, we have

had opportunity to note his bearing as an alienist expert before the law. He was an active member of the medical societies of his State and country, a good friend, a loving husband and a kind father. Twice married, he leaves behind a widow and three children to mourn his loss. To them we tender the condolence of a brother physician and sincere friend.

Carl Westphal, born March 23, 1833, died January 27 of the present year, made in his life-time a record of moral courage and scientific achievement, of industry and devotion to psychiatry, of which his profession is now justly proud and of which his family need never be ashamed. Few names have occupied a place more worthily or more prominently in clinical psychiatry than that of Westphal, and his researches in the pathology of mental and nervous diseases placed him in the front rank of neuro pathological discovery. He made, also, valuable discoveries in cerebral anatomy. Ophthalmoplegia interna, the cord changes in paresis, epilepsia, tabes dorsalis, Thomsen's disease, paranoia, agoraphobia, pseudo sclerosis, etc., have been much illumined by his laborious and careful investigations. His work was faithful and careful, his teaching accurate and truthful.

He was a distinguished son of a worthy physician, whom America will long cherish in honorable, grateful and sympathetic memory. All the better qualities which adorn the true man, accomplished *savant* and faithful physician were his. He was an admirer of Conolly and an enthusiastic follower of the great non-restraint reformer.

How lamentable is it that he should have died of a malady he had studied so much and done so much to ameliorate and cure in others!

Lamenting his untimely death, we pay the tribute of our regrets recorded in these pages. Westphal's sign, which he gave to clinical neurology, will never be forgotten, and the memory of the impress Westphal has made upon clinical psychiatry will be equally imperishable.

Dr. David Prince, one of the most able and original surgeons of the West and a frequent writer on neurological surgery, died of pneumonia, at his home in Jacksonville, Ill., on December 19, 1889. He had reached the ripe age of seventy-three years.

Reviews, Book Notices, &c.

Spinal Concussion: Surgically Considered as a Cause of Spinal Injury, and Neurologically Restricted to a Certain Symptom Group, for which is Suggested the Designation Erichsen's Disease, as One Form of the Traumatic Neuroses. By S. V. Clevenger, M. D., Consulting Physician in the Reese and Alexian Hospitals; Late Pathologist, County Insane Asylum, Chicago; Member Numerous American Scientific and Medical Societies; Author of "Comparative Physiology and Psychology," "Artistic Anatomy," etc., etc. F. A. Davis, Publisher, Philadelphia and London, 1890. Principal Office, 1231 Filbert Street, Philadelpia, Pa.

The Literature of Spinal Concussion has been increasing of late to an unwieldy shape for the general student, and Dr. Clevenger, in this work, has arranged and reviewed all that has been done by observers since the days of Erichsen and those who preceded him.

For many years this subject has occasioned contention in courts of law. This book, just issued, is the outcome of five years' special study and experience in legal circles, clinics, hospital and private practice, in addition to twenty years' labor as a scientific student, writer and teacher.

The different and sometimes antagonistic views of many authors are fully given from the writings of Erichsen, Page, Oppenheim, Erb, Westphal, Abercrombie, Sir Astley Cooper, Boyer, Charcot, Leyden, Rigler, Spitzka, Putman, Knapp, Dana, and many other European and American students of the subject. The small, but important work of Oppenheim, of the Berlin University, is fully translated, and constitutes a chapter of Dr. Clevenger's book, and reference is made wherever discussions occurred in American medico-legal societies. There are abundant illustrations, particularly for electro-diagnosis, and to enable a clear comprehension of the anatomical and pathological relations.

The Chapters are: I., Historical Introduction; II., Erichsen on Spinal Concussion; III., Page on Injuries of the Spine and Spinal Cord; IV., Recent Discussions of Spinal Concussion; V., Oppenheim on Traumatic Neuroses; VI., Illustrative Cases from Original and all other Sources; VII., Traumatic Insanity; VIII., The Spinal Column; IX., Symptoms; X., Diagnosis; XI., Pathology; XII., Treatment; XIII., Medico-Legal Consideration.

Other special features consist in a description of modern methods of diagnosis by electricity, a discussion of the controversy concerning hysteria, and the author's *original pathologieal view that the lesion is one involving the spinal sympathetic nervous system.* In this latter respect entirely new ground is taken. In one handsome royal octavo volume of nearly 400 pages, with thirty wood engravings. Net price, in United States and Canada, $2.50, post-paid; in Great Britain, 11s. 3d.

Besides this and the author's previous treatises which make his name

familiar to the medical profession as a writer of merit, the author's contributions to the pages of this journal have made his name known, especially to the readers of the ALIENIST AND NEUROLOGIST.

The author stands by Erichsen in his attempt to establish a concussional spinal disease, and goes much further and maintains that the lesion is one involving the spinal sympathetic system. Here the author opens a wide door for the entrance of diagnostic confusion. The intimate physiological relationship between the spinal and sympathetic system justifies the inference but the pathological proof is lacking and the clinical proof is rather on the other side, for lesions of the sympathetic nervous system without associate spinal traumatism or antecedent concussion are far more common than disease of this system found in connection with known spinal injury. Watson's experimental results with animals subjected to artificial concussions are against the conclusions of the author before us.

Hysteria and neurasthenia, due to neuratrophia and hereditary neuropathic instability, are associated and demonstrable in thousands of cases of sympathetic nerve perversion with multiform morbid symptom expression where no history of spinal concussion or traumatism can be found.

In connection with this subject, the neuropathic constitution and the neuroses spasmodica require more extended discussion than we can here give them, and far more than they have received at the hands of the author before us; and this or any book on the author's special theme, and the pathological view that the lesion is one involving the spinal sympathetic nervous system is incomplete without a thorough consideration of this subject and a critical differentiation between the spinal neuroses and the psycho-neuroses which involve the ganglionic system. The weight of proof—clinical as well as pathological—is largely in the direction of the more intimate relationship of sympathetic system disease with the psychical than spinal centers. Nature, in the peculiar construction of the spinal and gangiionic nervous systems seems to have had in view a distant rather than too intimate relationship, as is shown in the anatomical arrangement and in the clinical proofs. They are related, of course, but distantly and indirectly There is no such direct connection between the sympathetic nerves and the cord as exists between the true spinal nerves, afferent and efferent, and the cord, but an equally direct and in imate relationship does exist between the sympathetic nerve filaments and their ganglia.

Yet, there is no doubt of the existence of concussion disturbances, implicating the sympathetic system, but when these are found as the result of cerebro-spinal shock, we ought not to expect the more closely related spinal nerves to escape injury from spinal concussion, and ought not to attribute all the sympathetic phenomena, where we find no concomitant disorder, of the more directly related spinal nerves, motor or sensory, to spinal concussion only, ignoring psychical shock.

We are inclined to the opinion, where grave sympathetic system. symptoms appear after a railroad accident that they are more likely to result from cerebral disturbance, as Page maintains, and psychical shock than from spinal lesion, even where damage to the spine is clearly apparent. The literature of the fright neuroses has yet to be collected in book form, and the subject in connection with the neuropathic diathesis, would make

an interesting and instructive chapter in such a volume as the book before us. We hope the author, in the next edition, will write up the subject and dwell upon the differential diagnostic signs as they may occur to him between spinal concussional sympathetic disturbance and such as would result in the individual from excessive psychical emotion.

Apropos of this subject, the following remarks of the *British Medical Journal* will prove interesting:

"*Railway Spine.* A Berlin telegram with the above heading, which appeared in the *Standard* of November 20th, contained an account of a case of a Berlin engine-driver who was said to be suffering from a disease of rare occurrence, known to German physicians only under the English name of "railway spine." With the greatest bravery and presence of mind the man had been the means of averting a fearful collision, and we read that a terrible excitement had taken possession of him, and that all the feelings of excitement, terror and responsibility were compressed into the space of a few moments—in the moments which elapsed between his first consciousness of the impending danger and his successful and heroic prevention of the accident. He had no further immediate effect than a violent trembling in his legs; and after continuing at his work for five days, the symptoms of this railway spine showed themselves in full development. So far in the account there is no evidence of spinal injury, and the symptoms named are as little suggestive of it.

"We read that the man is completely prostrated, incapable of exertion, and quite lost to his calling. He has become lean, his gait is slouching and toilsome, and his speech slow and stammering. Digestion, memory and sleep are seriously affected; there is diminution of nervous sensibility (*sic*) over the whole body, so that he can scarcely feel the prick of a pin which draws blood. The legs, moreover, are benumbed, and, as it were, palsied up to the knee. The only apparent reason, therefore, for calling this a case of railway spine, is that his present condition is the result of something which happened to him on a railway, together with the notion, long exploded in this country, that railway injuries are of necessityspinal.

"The explanation of the case is, in reality, very simple. It is not a very uncommon or extraordinary example of a functional neurosis; in other words, of traumatic hysteria, originated by profound psychical disturbance; and associated with and underlying this in its present stage, is a considerable amount of general nervous depression, such as is often termed neurasthenia. A recognition of these conditions is essential if treatment in the case is to be of any avail.

"It is, we think, a matter of regret that paragraphs more or less of a sensational kind, such as that from which we have quoted, should appear in the lay press where no comment can be made upon them, or explanation be given to them, by those who are competent to do so. They are fraught with grievous harm. They increase the apprehension, anxiety and nervousness of those who have been recently in railway accidents, and who may happen to read them, and indirectly they are in this way likely to cost the railway company many thousands of pounds. This is no idle statement, but is a fact within our own knowledge on more occasions than one."

We have not the space to farther discuss this interesting subject. The author makes some *mal apropos* animadversions upon American medical schools, which we should wish to see eliminated from the next edition, and some more appropriate subject introduced instead thereof.

The illustrations of the book are good, the text and author's style are plain and clear, and the discussion of the subject at this time is justified, because many of its phases are yet mooted and mootable. The book will find a place alongside of Erichsen and Day in our libraries, and no neurological student will care to lay the book aside before reading it through, after he may have once begun it, notwithstanding he may not accept all the author's conclusions, and notwithstanding the author has not succeeded in dispelling the mists of obscurity which still envelop this subject.

KRAFFT-EBING'S BOOK ON HYPNOTISM.—

Arago, fifty years ago predicted, "Some day it will be possible for psychology to become numbered among the exact sciences." The publication of the translation of this very unique case, full of scientific and psychological interest, will go far to prepare the way and to dispel some of the erroneous ideas prevailing, not only among the laity but also among members of the medical profession.

The struggles of those who have engaged in the study of these psychological phenomena, and labored earnestly and impartially to place them upon a solid foundation, have been long and discouraging. They who have devoted any time to the subject, fully realize that it requires untiring patience, close observation and an impartial mind. Every contribution will add much to the fund of facts in determining the many questions that constantly arise. Krafft-Ebing is a supporter of *suggestion*, and offers suggestion as the explanation of these phenomena. Since the possibility of clairvoyance and thought transference, etc., has been established, the explanation of psychical phenomena will swing between mere *suggestion*, pure and simple (Bornheim), on the one hand, and on the other those much more complex and mysterious.

The subject of the experiment is hysterical (as is the case frequently, though not the rule), whose interesting history is concisely and clearly told. The author divides the states into three, to which the subject is capable of being transferred, viz.:

1. The relatively normal and lucid state, in which she presents the symptomatic picture and condition of hysteria gravis, with its usual neurotic and psychical functional disturbances.

2. A state of cataleptic somnambulism.

3. A state of auto-hyperosis, of which the last two can be produced experimentally at any time.

The procedures by which they are accomplished, do not differ from those usually employed by experimenters. The author believes the procedures and phenomena depend upon *suggestion*. He seems to think it remarkable that the patient generally raises her eyes to the experimenter, "taking his image, so to speak, into the darkness of the unknown hypnotic state.". This peculiar rolling of the eyes is very common in patients who

are very susceptible to the hypnotic influence, and is no more remarkable than many other phenomena witnessed. His conclusion that the experimenter's domination of the subject depends upon the intimateness of accord between subject and experimenter, his experiments fully prove. The distinction between perception and apperception at times appears to be questionable, especially is this so if it can be proved that a patient can, as it were, possess consciousness in each state, as some of Janet's experiments seem to establish conclusively, as for instance the Blanche Witt case. As is uniformly the rule in this class of cases, the changes are induced by the experimenter alone, and the subject perceives those only whom he wishes her to see. He concludes that everything results through suggestion (as stated above), and the ways by which it is possible are the auditory and sensory paths in this case. Very remarkable are the experiments whereby the bodily functions by unconscious psychical activities were affected.

The possibility of affecting and controlling functional sufferings is demonstrated, and are of the highest interest and of great significance for pathological nervous conditions. He very aptly states that the psychical influence over the functions of the body, the occurrence of which within the limits of neuropathology (?) cannot be doubted, and is still too little appreciated. This applies, however, not only to cases in which pathological changes are present, but in normally healthy individuals, at least in those who are not hysterical and are affected with no nervous disease. It is to be sincerely regretted that the experiment in clairvoyance and suggestion, mental psychical phenomena which were well established, were unsuccessful; for judging from the susceptibility to psychical influence manifested by the subject, it would not be expecting too much for the result in that direction to have been different.

The author's experiments relative to changed personalities, offer additional proof to that already known, that the psycho-physical phases of life which have been long dormant, become a part of the past, can again become active under favoring circumstances. By a careful study of the very valuable observations made by the author in states (2) and (3), and comparing these with personal observations, one is led to make two great divisions in this subject, viz., 1, The ordinary lucid state, whether the subject be in so-called normally fair health or hysterical (?), and 2, The hypnotic state, of which there are many modifications, as is demonstrated every day by experimenters. The author admits that the three subdivisions under iii., are very closely connected, as for instance, when the state of auto-hypnosis iii. b, produced by looking at a knitting-needle, represents a modification of iii. a, experimentally produced, in that the inhibition in extent approaches that of ii. Of greatest interest is the fact, which has been observed in this as well as in other cases, that a post-hypnotic action commanded in ii., under some circumstances produces auto-hypnosis, and this leads to the consideration of the condition the patient is in during the interval between the command (while in the hypnotic state) and the accomplishment of the post-hypnotic suggestion. The preponderance of observation would lead one to believe that the patient was still under the hypnotic influence. Very remarkable is the transfer from ii. to i., by the

experimenter counting one, two, three (the subject *not* counting), in order to prevent her from passing into state iii., a state which is not favorable to her well-being.

It is to be noticed that there are three different states of consciousness which have nothing in common, excepting they are observed in the same person. They do not appear even to interest, though in other cases they may be made to do so, by repeatedly directing the *attention* of the patient to the end that she will recall phenomena.

The modifications of the conditions known as ii. and iii., are many and various, and appear to be illimitable.

The influence of the physical efforts are remarkable, both from a therapeutic and medical-legal aspect. They who have had experience in the treatment of disease by hypnotism, agree fully with the author in his estimate of hypnotic suggestion as a valuable addition to the therapeutics, particularly of functional nervous diseases.

Though the author refers to the medico-legal aspect of the question incidentally only, the phenomena indicate what effects may be produced while in the hypnotic state.

The *brochure* is a very admirable and valuable contribution to psychical medicine, better appreciated when one has personal experience and practical demonstration in the study of the subject, for many of the phenomena described can be better understood and more fully appreciated when seen.

R. F.

MENTAL DISEASES. A text-book by Bevan Lewis, L R.C. P , London; M. R. C. S., England; Medical Director West Riding Asylum, Lecturer on Mental Diseases at the Yorkshire College.

Mental Diseases have come of late years prominently to the front in professional estimation. The somatic views, of mental action maintained by so many psychologists and alienists, have had a good effect upon the pathology of morbid mental movement to stimulate discovery. Of this fact the book before us, by the accomplished and eminent author, written with special reference to the *pathological aspects of insanity*, is abundant proof. The book comes too late for a critical analysis or elaborate portrayal of the many interesting features constituting its distinguishing peculiarities as compared with other valuable treatises on insanity by distinguished authorities.

We take time, however, to record our conviction that the book is the best and most complete treatise upon the pathological aspects of the subject with which we are familiar. It is a credit to its able author and reflects new honor upon English psychiatry. It contains the most complete portrayal of the pathology of chronic alcoholism which has come under our notice. The granular degenerations of nerve cells in the fifth layer of the motor cortex, with proliferation of pericellular and perivascular nuclei, and the changes in the deepest or spindle cell layer of the human cortex in chronic alcoholic insanity, the aneurismal dilation of the perivascular sac in general paralysis, the fatty disintegration of peripheral zone of first layer of the cortex in advanced senile atrophy, the vacuolation of the multipolar ganglion cells in anterior cornua of the cord in paresis, the sclerosic

changes of epilepsy, the degenerated medullated fiber in lateral columns of the cord in miliary sclerosis, are all so beautifully portrayed, that with the novel illustrations on pages 102 and 103, the numerous other familiar illustrations with clarifying features of neurological and psychological subjects, and the clear discussions in the text, based upon evident clinical experience in psychiatry, the book becomes an absolutely indispensable addition to every alienist's and neurologist's library, and no intelligent physician, desirous of advancing, can well dispense with it. Some of the more special features of this valuable book shall, at another time, receive more extensive notice at our hands. The author does not give such recognition to paranoia, as we should like to have seen in the book.

Blakiston, Son & Co., 1012 Walnut Street, Philadelphia, are the publishers.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS; THEIR APPLICATION TO VARIOUS DISEASES OF THE BODY. By Kurre W. Ostrom, from the Royal University of Upsala. Sweden; Instructor in Massage and Swedish Movements in the Hospital of the University of Pennsylvania and the Philadelphia Polyclinic and College for Graduates in Medicine, etc. 12mo. cloth, 75 cents. Illustrated. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia. 1890.

In his preface the author says, as the tendency of modern therapeutics is to cure disease by the application of the laws of hygiene, he feels that in presenting this little work to those especially interested in the subject, he will be supplying in English a treatise that has long been needed.

It is true several books have been written on this subject by physicians, but none of them have been sufficiently explicit in telling how to perform the various manipulations, or the cases which may be benefited by the movements.

This work endeavors to show how the movements are to be applied to all parts of the body, and also to show for what diseases such movements are indicated.

The author acknowledges his indebtedness to Drs. Charles K. Mills and H. Augustus Wilson, for their kindness in giving him ample opportunity to practically demonstrate the Swedish methods of massage and movements at the Philadelphia Polyclinic and College for Graduates in Medicine, and to such well-known Swedish authors as Wretlind, Hartelius, Kleen, etc., and expresses the hope that this little text-book will be a practical and valuable addition to what has already been published on the subject of mechano-therapy.

This book will prove useful to masseurs.

The author, however, like others before him, omits essential precautions about bruising parts. We have seen very grave abscesses developed by too violent kneading and thumb and finger effleurage, too much pressure and too much pinching being employed.

A HAND-BOOK OF DERMATOLOGY FOR THE USE OF STUDENTS. By A. H. Ohman-Dumesnil, M. A., M. D., Professor of Dermatology, St. Louis College of Physicians and Surgeons, etc.

"The author has sifted out the wheat from the chaff, and presents

in a concise form, the best and most applicable methods of dealing with the diseases of the skin."—*Canada Lancet.*

We transcribe with our unqualified indorsement this merited commendation of this little book. The author is well-known to the profession of St. Louis as a thoroughly enthusiastic student, correct observer, and successful practitioner, in dermatology, and as such we commend the book before us, especially for its utility and practical condensation of the subjects discussed.

MANUAL OF SKIN DISEASES. By W. A. Hardaway, M. D., Square octavo pages 434. Price $3.00. St. Louis: Theo. F. Lange, 1890.

The author gives us first a general introduction to the study of skin diseases, then an alphabetical arrangement of diseases for ready reference, and, finally, an appendix with formulas and a diet table. The subjects are well considered, the matter concisely stated, and quite an extensive line of reading has been condensed into this small work. We commend the book to the favorable notice of our readers.

This book, covering pretty much the same ground as the preceding volume, is larger and more elaborate; we cannot say it is more practical. It too is by a well-known dermatologist of St. Louis, also a teacher in one of the leading medical schools of the city; and for the same reason as expressed in the preceding review, we likewise commend this book to the practitioner.

PRACTICAL ELECTRICITY IN MEDICINE AND SURGERY. By. G. W. Overall, M. D, pages 128, 8vo. Memphis Printing Co., 1890. For sale by J. H. Vail & Co., 21 Astor Place, New York.

The author is well and favorably known to our readers as a writer on neurological subjects, and his book is a practical contribution to electrotherapy, which will prove a plain and readily readable guide to the practitioner.

The author, like some European writers, attaches, in our judgment, rather more value to electric baths than any superiority they possess over other methods of therapeutic application warrants; but the book is compact and reliable. It ought to be well received by the profession, especially such members thereof as have limited practical knowledge of electrotherapy and electrosurgery—and their name is legion.

PUBLICATIONS DU PROGRES MEDICAL, PARIS, 14, Rue des Carmes, Paris.

Etudes de clinique infantile (Syphilis héréditaire précoce, laryngite syphilitique, Broncho-pneumonie par infection intestinale, Prophylaxie de la rougeole et de la diphthérie a l'hospice des Enfants-Malades). Volume in 80 de 143 pages. Prix, 3 f. Lavec figures dans le texte.

LIEBIG AND ROHE'S ELECTRICITY IN MEDICINE AND SURGERY. This book is received for review in the journal from the well known firm of F. A. Davis, Medical Publisher and Bookseller, No. 1231 Filbert Street, Philadelphia, Pa. This is a practical and therapeutically instructive book, which we commend as convenient in size, inexpensive, and plainly

written, and convenient for ready reference in office electrotherapeusis. Chapter second, on Special Electrotherapeutics will especially interest the readers of this journal.

This is an honestly written book, and the official college connections of the authors and their reputations as careful teachers, justify the confidence of inquiring students of electrotherapy, and such will not be disappointed in the pages of this book.

Visceral Neuroses in Women.—Apropos of the recent sensible utterances of Dr. Wm. Goodell and other gynecologists, it would be well to recur to the strictures made in 1884, by Clifford Allbutt, consulting physician to Leeds Hospital for Women, on the then prevailing, but now happily abandoned gynecological notions. He said: "How intimately this organ, or this system, is associated with the nervous system is well known; but, unfortunately, the weight of our knowledge all leans one way—it leans to a curious and busy search for every local ill which may arise in the female pelvis, while blind oblivion scatters the poppy over every outer evil which in its turn might hurt the uterus; nay, more, a resolute prejudice would deny that in the woman any distress can arise which owes not its origin to these mischievous parts. *L'uterus c'est la femme* is a proverb which has received a new development in these days; for if by courtesy, rather than by conviction, woman be granted the possession of a few subsidiary organs, these, at best, have no prerogative nor any order of their own.

The uterus has its maladies of local causation, its maladies of nervous causation, and its maladies of mixed causation, as other organs have; and to assume, as is constantly assumed, that all uterine neuroses, or even all general neuroses in women, are due to coarse changes in the womb itself, is as dull as to suppose that the stomach can never be the seat of pain except it be the seat of some local affection, or that the face can never be the seat of tic-douloureux unless there be decayed teeth in the jaw. All mucous membranes, indeed, seem readily to betray nervous suffering by relaxtion or changed secretion; and I make no doubt whatever that a very large number of uterine disorders which are elevated to the place and name of diseases of the uterine system are but manifestations of neurosis. All neuroses are commoner in women than in men. Facial neuralgia is commoner in them, migraine is commoner; so is gastralgia, again, and the pseudo-angina. Not only so, but in the uterus they possess one organ the more, with its own rich nervous connections, and its own chapter of added diseases and neuroses; but to say that all these maladies are due primarily to uterine vagaries, is to talk wide of all analogies.

* * * * * * * * *

"A neuralgic woman seems to be peculiarly unfortunate. However bitter and repeated may be her visceral neuralgias she is either told she is hysterical or that it is all uterus. In the first place she is comparatively fortunate, for she is only slighted; in the second case she is entangled in the net of the gynecologist, who finds her uterus, like her nose, is a little on one side, or again, like that organ, is running a little, or it is as flabby as her biceps, so that the unhappy viscus is impaled upon a stem, or perched upon a prop, or it is painted with carbolic acid every week in the

year except during the long vacation when the gynecologist is grouse-shooting, or salmon-catching, or leading the fashion in the Upper Engadine. Her mind thus fastened to a more or less nasty mystery becomes newly apprehensive and physically introspective, and the morbid chains are riveted more strongly than ever. Arraign the uterus, and you fix in the woman the arrow of hypochondria, it may be for life.

"Now, gentlemen, it is time we complete our reaction from this gynecological tyranny, and that we of this College no longer permit ourselves to be snubbed by these brethren of ours, who calmly tell us, with their superior airs, that our use of such expressions as uterine neuralgia, irritable uterus, ovarian neuralgia, neurasthenia and the like, comes of a shallow sciolism, and is grounded upon the emptiness of our knowledge of uterine diagnosis.

* * * * * * * * *

"To underrate our debt to gynecologists, to forget the great work they have done in the past half century, were as foolish as ungracious, but, like all great movements in special fields of inquiry, it must be subject to reaction, and its results must be checked by those which have been obtained by other methods and in other directions. The wisest and most disinterested of gynecologists now know well how lamentable have been the exaggerations, how narrow the views, and how deceptive the data of many opinions which have passed current in their school, and they are ready to declare that if medicine is not wholly to reclaim a great part of the field occupied by them, its culture must at any rate be shared with the physician.

* * * * * * * *

"In such neurotic subjects, uterine laxities, moderate displacements and catarrhs owe their continuance, and often their very initiation, to an atonic state of body, and to a special instability of nerve-endowment, which may show themselves in failing function, and soon after in local trophic changes and perverted secretions. Such changes of function and such settlements of perverted action are often, no doubt, called to this spot or the other by some local deviation from the normal, as a consumption may take its beginning from some trivial and forgotten catarrh; but the essence of the malady is not there, and to try to cure such a malady by local means is as wise as to try to cure a syphilis by antiseptic dressing of its ulcers. Such subsidiary means are often needed, often indeed necessary; but in cases like those under discussion should be used as little as possible, because of the tendency of such methods to arouse and perpetuate a morbid possession of mind in the woman. All this our more robust, more clear-sighted and more candid gynecologists know well enough; in the rest the fault may lie rather with modern fashion than with themselves. Looking only to the uterine organs, their reason bounded by the confines of the pelvis, they attempt to stem the tides of general and diathetic maladies with little Partington-mops of cotton wool on the ends of little sticks. That many of the cases we have discussed need a judicious combination of local with general treatment is true, but in most of them the patient and the doctor are fascinated by the local phenomena, while Nature herself is performing on a far larger scale."

TAKE THEM OUT.—A good move in the right direction.—"Whatsoever ye would that others should do unto you, do ye even so to them." We copy with approval the following editorial from the *New Yorker Staats Zeitung*, of March 14th, with the hope that long perpetrated wrong of county care of New York's pauper insane may soon cease, and cease forever. The State Hospital for the Insane is the only proper place for the insane wards of the State:

"The Committee on Public Institutions (?) has agreed, by a vote of eight against three, to report favorably to the New York State Assembly, the Fassett bill, which directs the transfer of all insane paupers from the county alms-houses to the State insane asylums. The present year is the third time that this reform, in the public care of the insane, has been attempted in this State, and its previous failure of success certainly does not redound to the credit of the opposers of the measure.

"At the head of the reform movement stands the State Charities Aid Association, whose 'Visiting Committee' has, with commendable zeal, studied the existing condition of the pauper insane in the various counties of the State, and again emphasized, for public attention, the positive and urgent evils which therein prevail. By concensus of enlightened opinion, as expressed in all reports made by experts and humanitarians, concerning the public care of the insane in our State, we stand fully a century in the rear of the requirements of modern science and experience in this important province. The system at present in sway borders closely on the barbarity of the middle ages, and it is in an earnest effort for its removal, that not only the members of the Charities Association, but the leading medical authorities and men of science in general, as well as the officers of the State institutions for the insane, are now engaged. The opposition to this timely, pressing, and in every respect commendable reform, is confined to a circle of local politicians who, as Professor Chandler of Columbia College remarked, would derive 'political and other capital' out of the administration of the county alms-houses.

"As the basis of their opposition these people are really able to advance nothing but the time-worn objection of increased expense. To parry the grave and well-founded complaints that the insane consigned to pauper houses degenerate bodily, mentally and morally, that they often want for the relief of the simplest necessities of their position, and that they are never provided with adequate medical treatment, these opponents of reform have not a word to offer. The system which they represent is radically false; it is founded upon old and exploded views, and can never furnish satisfactory or even tolerable results. Insanity is a disease, for the efficient treatment of which special knowledge, as well as technical appliances, is indispensably necessary. These requirements are amply met in all the hospitals and asylums for the insane within the State, whereas, in even our best alms-houses, the most necessary prerequisites demanded by modern psychological science, for the effective treatment of this class of patients, are lacking.

"Touching the expense of this benevolent reform, the situation

may be succinctly stated as follows: In the various county alms-houses of the State, some 2,200 insane paupers at present endure a comfortless and hopeless existence. Of this number it is possible for the State insane asylums, in their existing capacity, to receive 1,200, so that like provision has yet to be made for 1,000 of these pitiable sufferers. According to expert opinion, the counties concerned in the projected change would thereby incur a total expense of about $650,000 per annum, not much more, in fact, than they pay under the present incomplete and unsatisfactory relations, for the support of their insane paupers. At any rate, the pecuniary sacrifice here asked in the name of humanity, is not great enough to justify the hostile spirit with which, in the interior counties, the measure is resisted. Whether the friends of the reform will attain their object the present year, is problematical. It is indeed possible that the arguments of spoils politicians may again triumph over good sense and a behest of pure humanity.

Through The Ivory Gate.—Studies in Psychology and History, by W. W. Ireland, M. D., Edin., formerly of H. M. Indian Army; corresponding member of the Psychiatric Society of St. Petersburg, and of the New York Medico-Legal Society; author of "The Blot on the Brain,' 8vo, pp. New York; G. P. Putnam's Sons. Edinburgh: Bell & Bradfute. 1889.

This is an examination into the careers and an explanation of them, of certain historic personages, from the stand-point of practical alienism.

This book is an entertaining, clinical study in historical psychiatry, by an alienist of acknowledged ability. The author erroneously calls his book "Studies in Psychology," whereas his theme is morbid psychology, or psychiatry. The book is a good companion and supplement to Brine de Boisment's "Rational History of Hallucinations," though less exhaustive and complete for our day than that of the distinguished Frenchman was for his.

The author's first subject, Swedenborg, was according to Dr. Tuke, a paranoiac. His "moral and theological writings contain much that is noble and true," which find acceptance by thoughtful men, "though marred by whimsical notions and erroneous statements."

The mental state of William Blake, Louis Reil, Charles J. Guiteau, King Louis of Bavaria; Theodore, King of Abyssinia, and Gabriel Malgrida, are all considered. Guiteau, the author justly regards as a victim of the combined adverse influences of bad training and vicious heredity. Lax self-control he considers also to have been an element in the development of Guiteau's character, but he does not attribute to Guiteau's hereditary nerve instability the pathological weight it was undoubtedly entitled to in the building of his insanely balanced and morbidly erratic brain. Of the remarkable spiritualistic philosopher Swedenborg, whom he characterizes as having "inherited a neurotic temperament, which late in life developed into a real mental derangement" he says: "After a period of great nervous excitement at the Hague, Swedenborg had in London, in 1744 'an acute attack of insanity.' This calmed down in a few months, and the will and

intellect resumed their power, 'though not to struggle against the delusions that had taken hold on his mind, but finding meaning in them to systematize them, and to propagate them,' and 'he remained the rest of his life in a state of delusional insanity.'"

Of the Canadian rebel Reil he thinks "the plea of insanity was urged at his trial with apparent reason, though without avail."

All readers of the ALIENIST will be interested in this book.

THE CENTRAL NERVOUS SYSTEM; A GUIDE TO THE STUDY OF THEIR STRUCTURE IN HEALTH AND DISEASE. By Professor H. Obersteiner, of the University of Vienna. Translated, with annotations and additions, by Alex. Hill, M. A., M. D., Master of Downing College, Cambridge. Numerous illustrations. Is in press at the publishing house of P. Blakiston, Son & Co., 1012 Walnut street, Philadelphia, Pa.

Methods of Examination in Medico-Legal Cases Involving Suits for Damages for Real or Supposed Injuries to the Brain and Spinal Cord. By Philip Coombs Knapp, A. M., M. D., Clinical Instructor in Diseases of the Nervous System, Harvard Medical School; Physician for Diseases of the Nervous System to Out-patients, Boston City Hospital.

A Contribution to the Clinical Study of Spontaneous Degenerative Neuritis of the Brachial Plexus. By William M. Leszynsky, M. D., Lecturer on Mental and Nervous Diseases at the New York Post-Graduate Medical School; Attending Physician in the Department for Nervous Diseases at the Demilt Dispensary, etc.

Spasmodic Torticollis.—Different Forms of Spasm Affecting the Muscles of the Neck. A Clinical Lecture, delivered at the Philadelphia Hospital, by Charles K. Mills, M. D., Neurologist to the Philadelphia Hospital; Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic.

A Plea in Favor of Early Laparotomy for Catarrhal and Ulcerative Appendicitis, with the Report of Two Cases. By N. Senn, M. D., Ph. D., Milwaukee, Wis., Professor of Principles of Surgery and Surgical Pathology in the Rush Medical College, Chicago, Ill.

The Cause of Death from Chloroform. By H. C. Wood, M. D., Professor of Materia Medica and Therapeutics in the University of Pennsylvania, and H. A. Hare, M. D., Demonstrator of Therapeutics.

Treatment of the Insane as Related to Science and General Conditions of Humanity Historically Considered. By Orpheus Everts, M. D., Superintendent Cincinnati Sanitarium, College Hill, Ohio.

The Relation of the Thalamus to the Paracœle (Lateral Ventricle). By Burt G. Wilder, M. D., Professor of Physiology, Comparative Anatomy and Zoology, Cornell University, Ithaca, N. Y.

Lesions of the Cauda Equina. By Charles K. Mills, M. D., Neurologist to the Philadelphia Hospital; Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic.

The Proposed New Lunacy Law. By Frederick Peterson, M. D., Pathologist to the New York City Lunatic Asylum; Lecturer on Nervous and Mental Disease at the New York Polyclinic.

Some Observations on the Hereditary Form of Chorea, with the Report of a Case. By Theodore Diller, M. D., Assistant Physician in the State Hospital for the Insane, Danville, Pa.

Progressive Facial Hemiatrophy, with Some Unusual Symptoms. By B. Sachs, M. D., Professor of Diseases of the Mind and Nervous System in the Yew York Polyclinic.

The Peroneal Form or Leg Type of Progressive Muscular Atrophy. By B. Sachs, M. D., New York, Professor of Mental and Nervous Diseases in the New York Polyclinic.

Case of Large Cerebellar and Several Smaller Cerebral Hemorrhages. By Theodore Diller, M. D., Assistant Physician in the State Hospital for the Insane, at Danville, Pa.

An Open Letter to G. Alder Blumer, M. D., Concerning a Thorough System of Ward Supervisorship at the Norristown State Hospital. By Robert H. Chase, M. D.

One Year of Acetanilide in Pediatric Practice. By I. N. Love, M. D., Consulting Physician Department of Diseases of Children, City Hospital, St. Louis, Mo.

A Septic and Unusual Form of Lung Disease Existing in the Mississippi Valley During the years 1806-7-8-9-90. By William Carr Glasgow, M. D.

Physiological and Pathological Reversion. By T. Wesley Mills, M. A., M. D., L. R. C. P., Lond.; Professor of Physiology, McGill University, Montreal.

Importance of Œdema of the Vaginal Portion of the Cervix Uteri as a Symptom of Chronic Disease. By Andrew F. Currier, M. D., New York.

The Insanity of Doubt. By Philip Coombs Knapp, A. M., M. D., Clinical Instructor in Diseases of the Nervous System, Harvard Medical School.

Ichthyosis Linearis Neuropathica. By Frederick Peterson, M. D., Lecturer on Nervous and Mental Diseases at the New York Polyclinic.

Antifebrin in the Treatment of Epilepsy. By Theodore Diller, M. D., Assistant Physician in the State Hospital for the Insane, Danville, Pa.

The Whistle Signal: A Plea for the More Safe Management of Railroads. By Robert Barclay, A. M., M. D., of St. Louis, Mo.

Flagrant Abuses Requiring Correction—Proprietary *vs.* Legitimate Pharmacy. By Wellington Adams, M. D., Kansas City, Mo.

Comparative Psychology. By T. Wesley Mills, M. A., M. D., Professor of Physiology, McGill University, Montreal.

Epicystic Surgical Fistula for the Relief of Vesical Catarrh. By John D. S. Davis, M. D., of Birmingham, Ala.

Present Status and Tendency of Gynecological Therapeutics. By Andrew F. Currier. M. D., of New York.

An Experimental Study of Intestinal Anastomosis. By John D. S Davis, M. D., Birmingham, Ala.

An Experimental Study of Lesions Arising from Severe Concussions. By A. Watson, A. M., M. D.

Clinical Memorandum. By Theodore Diller, M. D., State Hospital for the Insane, Danville, Pa.

Report of the Committee of the New York Neurological Society upon the Gallup Lunacy Bill.

Brain and Spinal Surgery in Philadelphia. By Irving D. Wiltrout, M. D., Hudson, Wis.

Nouvelle Iconographie de la Salpêtrière Clinique des Maladies du Système Nerveux.

Sixteenth Annual Report of the Superintendent of the Cincinnati Sanitarium. 1889.

The Colonization of Epileptics. By Frederick Peterson, M. D.

THE

Alienist and Neurologist.

VOL. XI. ST. LOUIS, JULY, 1890 No 3.

ORIGINAL CONTRIBUTIONS.

Note on Extra-neural Nervous Disease.

*A CLINICAL REVIEW PAPER.**

By C. H. HUGHES, M. D., St. Louis.

GOWERS, in one of those masterly pathological differentiations in which he is so characteristically adept, has given a description of a number of neuropathic states, which he has happily characterized as adneural in contradistinction from inter-neural solutions of continuity in nerve-tissue, either central or peripheral, associated with and giving rise to characteristic and sometimes the classical symptom-groupings of nervous diseases.

That there are many diseased manifestations of the nervous system and of portions of its mechanism justly entitled to be termed adneural, or as we prefer to call them, extra-neural nervous diseases, we have ample confirmation in the syphilitic neuroses and neuro-psychoses of exclusively gummatous origin, just as there are diseased conditions of the nervous system obviously due to the effect upon it of the venereal virus, which can in nowise be classed as simply adneural in character; among these latter, the directly neural destructive changes, due especially to syphilitic arterial degenerations, etc., and the specific and post-febrile neuritides, multiple and peripheral neuritides of malaria, alcoholism, rheumatism, etc.

* This paper was intended for the Missouri State Medical Society, but not read because of absence of author.

But the intention of this note is not to discuss this interesting subject at length, as to more than refer to it, would scarcely be germane to our present hasty purpose.

Our object in the present paper is to ask in the interest of a nicer and sounder differentiation than now prevails in nervous diseases, with a view to a more definite prognosis from certain symptom-groupings that frequently present in the study of clinical neurology, a more painstaking attempt at determining the pathological causative factors, and the differentiation, wherever practicable, of the probable *initial* from the *final* neuropathic lesion in making up our pathological picture of the morbid history of a nervous disease.

Even the swollen degenerative nerve cell in the brain of the chronic alcoholic, and spider cells surrounding the arterioles, is not all there is of this toxic disease, nor are the dilatations of the vascular walls all besides in its pathology. The spider cells and nerve centers are supplied with vascular processes. The nervous centers truly bear the chief brunt of alcohol's assault, and a neuropathic heritage of predisposing degenerative decay weakens resistive power in the higher nerve centers to the intrusion of cell-destroying agency of alcohol in the circulation. There is also the cardiac, the renal, the gastric, hepatic and other inherent diathetic weaknesses in hereditary dipsomaniacs that are usually extra-neural, at least in the sense in which strictly nervous disease is commonly regarded.

Vasomotor impressions and arteriole dilatations, often repeated, have preceded, in every instance, the lesions which we recognize of the distinguishing and distinctively pathological condition.

As there are intra-neural pathological changes, so there are also extra-neural morbid changes in the immediately contiguous environment of the nervous system, which as intimately affect the integrity of its structure so far as the purpose of its normal function is concerned, as

though that pressure of environment were a destruction of texture. But the final outcome and our justifiable hope of recovery from the patient's history are quite different.

A vascular pressure change, a glioma, or an adventitious lymph deposit along the course of an important nerve or upon a motor, sensory or psychical center may produce a symptom result not materially different, to all appearances, from the irremediable and hopeless degeneration of a sclerosis. The lesion of a vascular pressure change in an embarrassed nerve center may be *extra*-neural so far as the center showing the injury is concerned; it may be in the medulla, and the lesion, so far as we can see from the symptoms, may be in an area of the forebrain, and an insanity, an aphasia, a mono or polyplegia may follow.

If we accustom ourselves to look habitually at diseases of the nervous system in these two lights in which they are so often present, we shall some day reach a stage in diagnostic and prognostic evolution, when diagnosis will be less frequently pessimistic than now, even in apparently the most grave disorders of the nervous system. An optimistic factor has even now crept into our prognostications, respecting the outcome, in some cases, of apparent paresis or general paralysis of the insane, more frequently in locomotor ataxia and the sometimes simulated condition of neuritis alcoholica.

There are immediate as well as remote, as there are initial as well as final pathological changes in nerve centers; there are *extra-neural* as well as *intra-neural* causes of nervous morbid phenomena for the physician to consider.

The extra-neural morbid nerve change is really much more frequently to be found, if we search for it, with the possibility of a causative lesion existing remote from the part prominently attracting our attention. For instance, in the hyperæmic or anæmic neural conditions of distant nervous organs which are caused by disorder having its origin in the vasomotor centers of the medulla or further

above in the brain or in thermal disturbances of distant parts of the neural mechanism due to initiative changes in the heat centers, which are located in this portion of the cerebro-spinal axis or in the deranged glycogenic function and glycosuria, which present to us so remotely from irritations of the floor of the fourth ventricle, which may be there primarily or secondarily from vasomotor excitation at a point a little removed.

It is especially in the psycho-physical or physio-psychical disturbances which make most of the recognized forms of insanity that this fact stands out most plainly and forcibly.

Insanity is primarily and *ab initio* a psychical and associate vasomotor disturbance of which the grosser cerebral changes, as revealed by cadaveric exploration, are but concomitant and sequent conditions, so far as we have been enabled thus far to learn from the most searching autopsic investigation, aided by the logical discernment which comes to us concomitantly from a simultaneous study of both physiological and pathologico-anatomical conditions, either antecedent to, associated with, or following, the phenomena of normal and abnormal mental functioning. Let us take, for instance, as an illustration, incipient paresis.

There is apparently a stage in this disorder which might justly be called the pre-paretic stage (though some will dispute it), when the pathological conditions are not essentially different to all appearances, and from all that we can discover by analogical reasoning and diligent research, from a state of cerebral arteriole hyperæmia, and consequent cortex excitability, and perverted exaltation of function, similar to alcoholic intoxication.

This is the stage, when, in our opinion and clinical experience, recoveries are possible, and do sometimes appear to take place even in general paralysis of the insane, and while the brain is markedly disordered in this insanely exalted function, the chief pathological condition here is, so far as the cortex is concerned, largely in the disorder of the vasomotor mechanism, and in some measure extra-neural

with reference to the part specially revealing the disordered function, which is here in the forebrain. (Its initial *locus morbi* may be in the center mechanism of the sympathetic system, or possibly in a small spot in the medulla.) But this is a mixed illustration, for the disorder may not be wholly vasomotor, because the cerebral hyperæmia may be induced by primary cortex irritation and the brain be overcharged with blood on the principle, "*ubi irritatio ibi fluxus*," as well as from possible excitation in the medulla, as just intimated.

In general paralysis the initial lesion, it is true, is in the nervous system, in the nature of a paralysis of vasomotor function and arteriole blood-pressure embarrassment, but its inception is not always in the cortex, but sometimes doubtless in the medulla oblongata. The beginning lesion is not therefore extra-neural, with reference to the whole nervous system, but may be extra-neural with reference to the part responsively affected in morbid symptomatic expression. The nervous system is at fault in these extra-neural affections in so far as in it appears to be the seat of disorder, but the part that shows disorder may be, and often is, acting simply in physiological excess or perversion, because of a distant pathological structural change. In making this statement we are not unmindful of the *post-mortem* revelations of cortex surface structure change in paresis.

Congestive states of nerve centers may be due to either directly or remotely transmitted vasomotor excitation or depression as well as to conditions causing excitation or depression in the vasomotor centers directly.

Neurilemma changes affect nerve function as potently as intra-neural axis cylinder pathological changes, and the resulting disease is one of the nervous system, but it is, in a sense, an extra-neural disease, because not in the conducting nerve texture itself, but embarrassing nerve function, all the same by peripheral pressure. The white substance of Schwan is a part of the nerve, but not its functioning part.

Paralytic affections may come, as we know, from external neural pressure, and when they can be traced to this cause the outlook is usually more hopeful than when the cause is solely due to pathological molecular change in the neural cell-groups of the affected center of function. It is thus that we have more hope in post-scarlatinal, post-diphtherial and in post-malarial, as well as the post-syphilitic paralysis and post-alcoholic, not of long standing, than in paralysis from direct cerebral or spinal violence, and in recent alcoholic neuritides, malarial, syphilitic and neuralgic, if there be not a surgical, unreachable exostosis.

Some of the non-febrile toxic paralyses, too, are for the same reason, hopeful, if we except chronic lead palsy sometimes, and the chronic sequence of very long-standing alcoholism. The immediate vasomotor paralysis of acute alcoholic toxhæmia and its motor and psychical paralytic results often recover quite rapidly, as we see in delirium tremens and in the acute limp psycho-motor paresis of an ordinary drunk. So too in the extra-neural paralysis of toxhæmic bromism and other forms of non-alcoholic toxic impression.

The distinction to be made between extra-neural and adneural nervous affections, is that while *extra-neural* is an affection of the nervous system, chiefly located elsewhere than at the point showing the symptoms of morbid nerve embarrassment; *adneural* disease may be at the very point of the symptoms exclusively in the form of an adventitious deposit, a morbific exudate causing, by interstitial or peripheral pressure, all the symptoms. An adneural disease may not be, in strict phrase, a nervous disease at all, while an extra-neural nervous disease is always a disease of a part of the nervous system, distant from the part specially displaying the symptoms, and includes the adneural affections of Gowers.

To return now to the question of mental disease and the chief purpose of this critical note is to ascertain to what extent insanity, as we generally see it, is primarily an extra-neural disease, so far as the purely intellectual

area of the brain is concerned, an involvement of the gray cortex cells of the hemispherical ganglia and its coverings.

In a paper read before the Cincinnati Medical Society, October 11, 1887, Dr. W. H. DeWitt, on "The Primary Psychoses," shows quite conclusively how psychical disorders of this class are due to functional perversions or "molecular disturbances not the result of coarse changes in the essential nerve element." He even maintains that "the manifestations of excitement in the primary forms of insanity are the cause of the changes in the cerebral cortex, not the morbid alterations the cause of the excitement or maniacal furor," a position we think quite tenable in a large number of cases of insanity if we do not thereby mean to exclude disease from the brain altogether, as the cause of the insanity, but admit a remoter morbid neural implication elsewhere than at the precise locality revealing the disorder of function, in other words, as we have stated, *extra-neural* with reference to the precise spot showing disorder, that is, with reference to these psychoses from vasomotor disturbances.

The records of the *post-mortem* table are practically negative as to the precise causative changes for psychical aberration in the cerebral cortex. Often autopsies of acute maniacs dying of intercurrent disease, made by Dr. DeWitt, no single instance, upon careful scrutiny, revealed changes positive enough to account for the mental manifestations. And this is in accord with all other similar research. They were such as are found every day in the *post-mortem* room of the general hospital.

The microscope reveals but little definitively significant as unvarying cause.

But we ought not to look for absolute and entire causes in *post-mortem* results, coarse results especially, nor in microscopic sequelæ either, *i. e.*, exclusively, but only relative causes by inference from effects. *Post-mortem* appearances are consequences and, coupled only with what we know of the physiological activities and perversions

of activity leading to their production, are these microscopic examinations of special value to the neurological or any other clinician.

When we see a neoplasm or miliary aneurism, a pigmentary, granular or atheromatous alteration, a contracted or dilated arteriole or perivascular space, under cerebroscopic examination, we know that though we have not the cause alone of the disease before us, but partly at least, its results, a certain functional derangement of the neural mechanism essential to the organic life and normal functional co-ordination, has been interfered with, and according to the physiological light we may be able to throw upon the nature of that function, preceding the final change we are studying necroscopically, will be our knowledge of the real cause of the psychical disturbance during life. An island of adventitious deposit may take place, an embolus may lodge in a part from a previous perversion of function, and become itself another source of embarrassed function, through pressure, or by directing entirely the stream of nutrition to other parts than those designed by nature to receive the nutrient supply.

The whole disease is not what we see, even in cerebral gliomata, sarcomata, carcinomata, osteo-sarcomata, angiomata, etc., *post-mortem*, though it may be a part of it, and often is, undoubtedly; but what our reason, based upon physiological knowledge, coupled with *post-mortem* resultant appearances, tells us must have pre-existed to have made the necroscopic change a possibility, as well as the secondary degenerative necroscopical demonstrations under the microscopic lens.

It is by the right interpretation of undisputed facts and the proper use of common knowledge in psychiatry, that true progress is promoted. The sure foundation and growth of psychiatry and neurologic science, as in all departments of scientific research, is in the correct meaning of its facts.

Students of pathological histology are prone to ask the question, "If the microscope fails us what other

resource have we?" and to answer, practically, "None!" Here we differ. The microscope does not fail us any more than it does elsewhere in scientific research. It gives us the necroscopic results and the precedent physiological movements are, in part at least, revealed to us by biological science, in which the latter so largely aids us. It gives the facts, and reason must supply us with the interpretation. And now will the reader, carrying with him the distinction which we have endeavored to make between strictly neural and extra-neural or adneural disease, look at the facts? Of the somewhat constant and characteristic appearances, *post-mortem*, in cases dying of insanity, Dr. DeWitt presents the following *résumé* respecting supposed *casus mori* of the so-called terminal psychoses, with the very judicious introductory remark, that very much remains to be added to psycho-pathological literature, and quite as much, perhaps, to be expunged, presenting, in confirmation, the fact that a photographic representation of miliary aneurism and atheromatous degeneration of blood-vessels, both purporting to have been taken from the brain of a melancholiac, had been sent him as characteristic of this psychosis of depression, these conditions being, as the doctor correctly states, purely accidental to this disease, having no necessary connection with the mental attitude of the patient, as the gravest forms of melancholia are found without these conditions existing, and miliary aneurism may exist even in a brain healthy enough to display no psychical perversion.

Dr. DeWitt found constant and characteristic brain changes *post-mortem* in about *one-fourth only* of the fatal psychoses examined by him. "Even these invariable and direct *post-mortem* appearances, if we scan them closely, are not what they seem." This is true of all *post-mortem* appearances if we accept them as causes rather than as only partly causes and chiefly results of the morbid action in the disease demanding our attention *ante-mortem*.

"A very frequent change from the normal condition

is a sclerotic or fibrinous transformation of the vascular walls," an extra-neural condition, you see, so far as the part abnormally affected in function is concerned. "On section, the tissues present a channeled or worm-eaten appearance. The vessels stand out prominently with open mouths beyond the cut surface; in the larger vessels. This appearance is readily seen with the unaided eye; passing the finger gently over the surface imparts a sensation of inequality and roughness. Among other changes will be noticed a multiplication of the vascular nuclei, granular or colloid degeneration of the neuroglia. Some investigators claim that the entire vessel may be converted into a colloid granular mass. This is, as you see, an extra-neural.

Continuing the interesting *post-mortem* record, "the most characteristic appearance is the pigmentary and granular transformation of the adventitia." And this is also adneural. These deposits are to be found in groups along the course of the larger vessels, and more especially is this noticeable at or near the forking or bifurcation of a vessel. The very minute branches rarely ever participate in these changes. The continual over-straining of the vessels in insanity induces in time alterations in their caliber. In the normal healthy brain they are found to pursue a uniform, even course, perhaps a trifle undulating or wavy, while in those brains subjected to this strain, we find the vessels tortuous and presenting unequal dilatation and constriction. This is also extra-neural.

Now note the next subject and keep in mind the distinction we have made between real intra and extra-neural disease involving the nervous system in disorder. General paralysis of the insane is the next subject, or dementia paralytica. Two cases of paretic dementia with a clear history of syphilis. The growths or deposits were found between the elastic layer of the internal coat and endothelium, consisting of endothial cells multiplying and proliferating, finally being converted into hard, firm tissue. It is, I believe, a well-established fact that these changes

may and do take place in the vessel, more especially at the base, independently of any involvement of neighboring tissue; of course, this is the exception, not the rule. In a large proportion of cases this condition gives rise to cerebral inflammation and softening, the result of thrombosis. The external appearance of vessels undergoing this peculiar transformation will be found but little changed, the caliber or lumen simply being encroached upon. These changes induce still other changes in the adventitial spaces.

Cerebral thrombosis is always an extra-neural condition so far as the affected part of the brain is concerned. It is a vascular system, while the subsequent changes are neural.

The other changes refer to the important part played by the perivascular spaces of Robin and His, a very important subject, and very necessary to be understood in the interpretation of cerebral morbid symptomatology. Meynert's conclusions as to the relative frequency of lymph dilatations of these important spaces in melancholia and the acute psychoses may be correct as a fact of observation, but their causative relations are not proven. All this, as you see, is extra-neural or adneural disease—*cerebral-pressure* disease and not cerebral *nerve-texture* disease. How little of really intra-neural or dissolutive disease of nerve-tissue there is in the psychoses, and these are the chronic and terminal psychoses we are considering.

Connective tissue or neuroglia changes—a subject about which we know less than about some others in cerebral pathology—comes next, and he finds the minute spherical bodies, which some have called nuclei, multiplied.

But the action of certain hardening solutions on the brain cortex causes contraction or condensation of the fibrils of the neuroglia, and Dr. DeWitt thinks the spider-shaped cells of Meynert are the product of alcohol or chromic acid. At least he regards the question of the pathological rather than *post-mortem* origin, as *sub-judice* as to them.

We were supposed to have reached the direct pathological changes in the brain changes proper, but as we look at them they disappear in other conditions. Let us look again at the real brain changes—the shrinkages and destructive changes in its substance, its contracted or increased volume, widened sulci, distorted convolutions, dilated ventricles, tortuous and damaged vessels, thickened membranes, and the destructive changes in the cortex cells.

How much and how many of these conditions cause the disease, how much are simply concomitants, and how much does the disease itself cause?

After we have done viewing the coarse changes in terminal dementia terminated, and turned our lens upon the ganglion cells of the cortex, "the first thing to meet the eye is a simple wasting or shrinking of the superficial cells of the cortex. They appear simply diminished in size without any appreciable change in their composition or structure; their associate nerve-fibres are less numerous and very often indistinct in outline. They possess only in a slight degree the quality of absorbing staining fluids. The contrast between these and other cells of normal size and appearance is very striking. The pericellular spaces are seen to be filled with granular and yellow amorphous matter. In the normal brain-tissue there will always be found traces of pigment in the larger ganglionic bodies; in the insane it is greatly in excess, destroying the peculiar fibrillary texture of the cells. There will be observed not alone in the larger pyramidal cells but in the smaller, a colonization or grouping of these granules. The yellow amorphous substance mentioned as being present in the ganglionic spaces, gradually encroaches upon the cell proper, until nothing is left to mark its former location but these abnormal products. This is strikingly suggestive of a gradual deterioration of cell protoplasm." All the cells of the cortex do not participate in these changes, but groups of healthy cells in the immediate neighborhood of a mass of diseased ones are often seen, as all authors have observed,

and these changes are not all uniform. The locality and extent of these changes will depend altogether upon the locality and extent of vascular deterioration, the latter being the essential causation element (adneural again). Still another condition to be mentioned in this connection is the swollen, cloudy appearance of certain cells, notably of the parietal region. This is characteristic of the very acute violent insanities, and whether this is extra-neural or not, remains to be settled.

There are also certain well-defined changes to be noted in the white or medullary matter, infractuosities, changes in color from the normal, certain areas presenting a dark brown color, others again very white or bleached, decrease of the medullary substance between the axis cylinder and neurilemma. A very infrequent appearance in the ordinary forms of mania is that of cystic degeneration. The author has observed it in but one single instance, no more entitled to a distinctive pathology than the case of melancholia with atheroma. It is far more frequent in *paretic dementia*, as he claims.

Now we come again to the undoubtedly extra-neural, and how often do we tread extra-neural or foreign ground in our *post-mortems?*

If we go from the substance to the surface of the brain and scan the meningeal affections that disturb and embarrass normal movement in the mass beneath, we find them all extra-neural. The opacities of the arachnoid, the granular changes and adneural depositions of the dura, the adhesions between it and the bony case above or the subjacent membranes beneath. These and the agglutinations of the tri-membranous covering of the brain, and the neo-membranes, which are sometimes seen beneath the dura and all the vascular, specific, tubercular and inflammatory exudations and hemorrhagic changes which make so much of the pathology of this region, as we see it *post-mortem* with eye or lens, are all, in a certain sense, extra-neural as well as the opposite bloodless states, associated leucemia, anæmia, scrofulosis and phthisis.

Thus we see how much disease of the nervous system may proceed from causes extra-neural or adneural as distinguished from intra-neural, and how difficult it is to determine how much or how little of the *post-mortem* appearance is the cause, or distinguished from the sequence of the morbid action, how much is indirect and how well we are justified in taking a binocular view and of employing the direct and indirect designations of intra-neural and extra-neural nervous disease. While a book might be written on this subject, a hint to the wise is sufficient.

The clinician and the micro-necroscopist play each his respective parts. The one searches the sequences of the morbid cause, often finding cause and sequence blended, and with the aid of clinical experience, the light of physiology and normal histology, looking back from the silent cadaver to the vivisectional revelations of the biological laboratory; the other illumined in his conclusions by the added light of a broad therapeutical experience, revealing function through medicinal and toxic touch of certain nerve centers and cautious, unbiased judgments, they paint the lights and shadows, the background and foreground to the pathological picture, and are thus not misled in their pathological studies beyond the just warrrant of biological laws. The scalpel, the electrode, the bacillus, the known or unknown virus of a fever, ptomaines, leucomaines and the chemical atom have a place in their judgment of the antecedent causes leading to the dissolution and destruction revealed under the microscope *post-mortem*. The morbid or even physiological antecedent processes as well as the morbid *finale*, the processes that may have led to, as well as proceeded from the pathological finding, engage their serious thought, and out of the labyrinthian maze of physio-pathology, patho-physiology and pure necroscopic debris, they endeavor to get a gleam of the true light. Yet, how imperfect is pathology, and how misleading still, the microscope, if we permit ourselves to study pathic findings without the added light of physiology and clinical observation.

Drunkenness—Its Influence on Morality.

By T. L. Wright, M. D., Bellefontaine, Ohio.

HAVING discussed the effects of drunkenness upon the physical body and upon the mind,* it is proper to consider the nature of its impressions upon the moral constitution.

The *manners* of men as they relate to questions of duty, obligation, sympathy and the movements of personality, either for good or evil, are usually known as morals. Manners are much involved with considerations of incentive, motive, design, intent and purpose, and they are thereby materially colored and modified. The influence of alcohol on morals is immediate. It is perceptible to observation quickly after alcohol is taken into the system; but it varies greatly, both in kind and intensity, with the stage of drinking.

In general terms, it may be said that no instance has been recorded where the influence of alcohol upon a good man, when carried to its full extent, has failed to taint his moral nature. Nor has an instance ever been known of a character so base, so bestial and inhuman, that alcohol could not sink it still lower. It seems, in fact, true, as far as the world's experience extends, that the depths of depravity into which alcohol may plunge the human soul, have never yet been sounded. In its position as a wrecker of good morals, alcohol stands "proudly eminent." Few things are so bad as to have no good in them; but aside from certain properties available in therapeutics, alcohol seems, in its impressions on the human organism, to be singularly bad. In all its long and dreary history, it has never been known to add anything whatever, to a man's real character for piety, or

* See *Quar. Journal of Inebriety*, October, 1889, and January, 1890.

sympathy, or love to his family, or kindness to his fellow-man.

In his able work, "Alcoholic Inebriety," Dr. Joseph Parrish says: "Crimes are undoubtedly committed by persons who are under the influence of drink. * * * One amongst such persons, takes his draught of whiskey in just such quantity as suffices to *harden* his conscience for the time, and nerve his arm for the intended deed * * * He may be the possessor of a criminal mind, a criminal first, and a drinker afterwards. On the court records he has no right to appear as a drunkard."

The distinguished judge, Noah Davis, of New York, says: "There can be no doubt that the vast majority of crimes, especially those of personal violence, find their cause in drunkenness. It is one effect of intoxicating liquors to so excite the nervous systems of men as to lead them to commit crimes. * * * In point of fact, no doubt many persons first *subdue* their own consciences by preparing to commit crime through drink. The murderer, Burke, of Edinburgh, engaged in wholesale slaughter for the dissecting table, said that never but once had he any compunction of conscience when killing human beings. It was when an infant he was about to smother looked in his face and smiled. 'But,' said Burke, 'I took a good glass of brandy, and then I had no further trouble.'" This incident is given by Judge Davis to fortify the position assumed by the law, namely, *drunkenness is no excuse for crime.*

Here is the testimony of a learned physician and a learned lawyer to the fact that, according to one, alcohol "hardens" conscience, and according to the other, it "subdues" conscience. But they say that it not only hardens and subdues conscience, but it does so to such a degree that it makes possible crimes of the utmost atrocity, crimes that, without the intervention of alcohol, could not have been committed. If the actually criminal mind, therefore, is often incapable of fulfilling the criminal intent unless conscience is first smothered by drink,

the power of alcohol in suppressing the moral feelings must indeed be great.

When the influence of strong drink is so decisive in strengthening the determination in the commission of great offenses, how effective it must be in fortifying the intent in the commission of small offenses. It is not to be supposed that the process of subduing conscience is applicable to criminals alone. It is a common saying, *in vino veritas.* In other words, alcohol develops the natural wickedness of the drinker. But the fact is that the paralysis of alcohol destroys the finer sensibilities, modifies the coarser ones, depresses the inhibitory powers, and in various ways, produces in the human system entirely *new* and undesirable characteristics and propensities.

Alcohol deadens the conscience of anyone who partakes of it, let his motives in drinking be what they may. The casual drinker often partakes of alcohol without any clearly defined purpose, certainly without the slightest intent of committing an unlawful act. Yet, the poison affects him as it does others; it paralyzes his conscience, the acuteness of his sensibilities is blunted, and he is peculiarly liable to be led into improper and unlawful conduct. The drinker is deprived of intellectual soundness as well as of moral capacity; and yet the law says, "drunkenness is no excuse for crime."

It is true the plea is set up that the drinker, partaking of liquor when sober, knows the effects that alcohol will have on him, and therefore he is responsible for them. This is probably erroneous in point of fact. Ordinarily, the casual drinker may know from various sources what drunkenness has been to him in the past, as he also may know from observation, its effect upon others; but he does not know from all this what it is sure to be *in the future.* He will say he could have acted differently "if he had chosen to do so."

The mind may associate itself with the past by retrospection, memory carrying the *ego* along with it, and

making it always present with every event called back. But it is somewhat doubtful if the mind can project itself into the future with any degree of certainty. The judgment of the *assumed consciousness of the future*, must be on a line with present consciousness. It seems unlikely that a sober consciousness can truly conceive of itself as becoming drunken. It looks like a division of personal identity, not only into different points in time, but into separate places in space, and all at one and the same instant. The ever present *ego* refuses to recognize itself as being something else or somewhere else. It is certain that the legal presumption is true, that the drunken man cannot control his actions. But the drinking man, when sober, will not admit this with respect to himself. He does not believe it, much less does he *know* it. It is an impossibility, despite the lessons of experience, for a sober mind to conceive that any foreign agency whatever, can suppress its normal powers and attributes. The inebriate often fully resolves to conduct himself differently hereafter when drunk, from what has been his custom heretofore. But the man is deceived as to the freedom and powers of his mind and will when he is intoxicated. The consciousness of inebriation then rules the conduct, while the rational consciousness under which he formed his resolution, is nowhere in existence.

The criminal who drinks "just enough to nerve his arm for the deed," does so because he has been taught by experience that alcohol will so nerve his arm, not because he has any idea of the mode of its action. If he has any thought upon the subject at all, it is in the form of belief that his criminal nature will be directly and actively supported by liquor; while the real fact is, alcohol simply blunts the rising qualms and silences the feeble outcry of his conscience. It is a great fact that strong drink impresses upon the nature of every man who is intoxicated one of the essential characteristics of the criminal mind, namely, a subdued or hardened conscience.

Still the manners of a drunken man do not always partake of a criminal cast. They may be silly or sorrowful, or jovial, or ludicrous. But they are invariably unnatural and out of harmony with the proprieties of sober life. A strange gentleman, well dressed and of handsome features, rushed from the sidewalk into a private dwelling where a company was enjoying some music. He was considerably intoxicated. With many bows and smirks and imbecile smiles, he said his name was C———, a name well known and highly respected in a neighboring city. "He had heard," he said, "the music in passing, and couldn't resist the temptation to step in for a moment. He was passionately fond of music; he would just lightly touch the keys." Of course, in his condition, he could not play a bit, although that fact did not seem to embarrass him. Soon he arose, and with a profusion of condescending movements and language, intended for all and singular, he trippingly departed with an air which said, as plainly as an air can say anything, "No thanks, no thanks, not a word; you are more than welcome."

Freaks of this kind are far from uncommon. They are, of course, mortifying in the end, but they impress very little preventive caution with respect to the future. The next period of intoxication will, not improbably, be attended with a similar or analogous experience.

It has passed into the domain of science and acknowledged truth, that certain brain centers and brain fibers are the physical bases of the manifestations of the moral nature; just as some other nervous organisms minister to the demands of the intellectual powers. When, therefore, alcohol disturbs and distracts the whole nervous system, its evil influence is as certain to be observed as impressing the morals as it is in affecting the intellect or the motor capacities. This is the key to the explanation of the silly speeches and fantastic absurdities of the man newly drunk, as it is also to an understanding of the violence and criminality of others, more deeply entangled in the intricate meshes of prolonged intoxication.

The nerve centers concerned in the moral exposition, when operating normally, associate the various nervous movements of the human body with each other. They unify related particulars and details in nervous action, and also discriminate between and classify them. They determine the character and standing and real worth of the mental movement as a whole, fixing its actual compatibility or incompatibility with the natural order of things. These are, at least, some of the uses and duties of the nerves and centers of co-ordination—those nerves that chiefly subserve the behests of the moral nature.

The importance of that system of nerves known as nerves of association, cannot be overrated. Dr. Maudsley remarks: "The habitual co-ordination of thoughts and feelings is the basis of consciousness and personal identity." And again he says: "When co-ordination of function in the brain is overthrown, the consciousness of personal identity and responsibility is also destroyed." When the casual drinker becomes fairly intoxicated, the normal co-ordination of the several movements pertaining to the brain is overthrown; and it so remains until the drunkenness is removed. In acute drunkenness the associating power of the nerves may be suspended or disordered for a short time only; yet the derangement is as real while it lasts as though it were permanent.

Although consciousness has essential relations with purely intellectual attributes, as with sensation, perception and memory, it is evident that the correlation of the items of mental effort is necessary to that perfect consciousness which distinguishes *self* in vivid personality from all things else. Without a clear conception of individuality or personal identity, there can be no practical idea of personal rights; while out of the notion of rights grow the feelings of responsibility and duty, in other words, the moral nature. It is apparent that whatever tends to depress and paralyze the nerve centers mainly operative in displaying the qualities of morality, must impress injurious features on those qualities.

In "Rob Roy," Sir Walter Scott describes in a lively manner, a scene wherein alcohol has, in a merely casual drinker, assumed the mastery, and for the time being, destroyed the moral sense:

"To combat or drown these painful reflections, I applied myself more frequently than usual to the wine which circulated on the table. My spirits, once aroused, became extravagant. I talked a great deal, argued what I knew nothing of, told stories of which I forgot the point, then laughed immoderately at my own forgetfulness. It is even said I sang a song, but I do not remember it. I accepted several bets without having the least judgment. I challenged the giant, John, to wrestle with me, although he had kept the ring at Hexam for a year, and I had never tried a single fall. Without positively losing my senses, I speedily lost all command of my temper, and my impetuous passions whirled me onward at their pleasure. I had sat down sulky, discontented and disposed to be silent. The wine rendered me loquacious, disputatious and quarrelsome. I contradicted whatever was asserted, and attacked, without respect to my uncle's table, both his politics and his religion. At last, frantic at some real or supposed insinuation, I actually struck Rashleigh with my fist. Swords were drawn, and I was carried by main force to my room. With the morning, cool repentance came."

Shakespeare knew the deadly spell that alcohol casts on morality:

"If I can fasten but one cup upon him
With that which he hath drunk to-night already.
He'll be as full of quarrel and offense
As my young mistress' dog,"

saith "honest Iago."

It appears, then, to be a potential quality of drunkenness to depress the moral capacities, and thus foster the assaults of temptation, whether it comes in the guise of folly or of criminality. The corruption of the moral system may be observed in the small vices of drunkenness as well as in the surprising turpitude of its conspicuous outrages. The crimes of drunkenness are not commonly the outcome of premeditation and brooding malevolence. The natural defense against their exhibition and activity, the nervous basis of the moral constitution, is disabled. While this nerve defect in drunkenness may, to some extent, be inconsistent with premeditation and malice in the commission of crime, yet the very defect is the more

dangerous to society, from the fact that it is withdrawn from the supervision of the rational mind. On some slight miff, one drunken man, B——, shot a companion, P——, also drunk, through the head. But two or three persons saw the deed—all were drunk. The next morning the murderer claimed he had no knowledge of the transaction. Probably he had none. The dead man was his friend. The subject in dispute was of small moment, and the whole matter was a thing of half-earnestness and half-drunken bravado. There was absolutely no rational cause for the shooting. The moral nature was benumbed, as indeed, were the intellectual faculties also, and there could be no intelligent supervision brought to bear. Feeling for another and alarm for self were equally out of consideration. Alcoholic criminality, therefore, has no natural limits. It is subject to no law and is insensible to moral admonition.

Compunction is wanting in the drunken state, and the inebriate indulges unrestrained in a swarm of detestable vices. Of these none is more audacious or contemptible than lying. No matter how "fine a fellow" a drunkard may be, his word is taken with suspicion and protest. His moral imbecility is so great that he honestly holds truth in light estimation. He is incapable of analyzing the real nature of truth, for he is devoid of the capacity to feel it.

Alcohol increases the susceptibility to criminal influences in a mind naturally inclined to wrong-doing. It likewise implants a susceptibility to criminal influences in a nature constitutionally honest and sympathetic; for the state of drunkenness has for one of its invariable attendants an obtuse and lethargic moral sense.

A person intoxicated will commit offenses in thought, in speech and in conduct, which in his sober moods, he would view with abhorrence. The tendency of drunkenness is inevitably towards crime.

An Unusual Case of Atrophy of the Skin.

By A. H. Ohmann-Dumesnil,

Professor of Dermatology, St. Louis College of Physicians and Surgeons.

THE more or less remote influence of the nervous system, as well as its direct effects upon processes occurring in the skin, have made this part of dermatology highly interesting. The anatomical investigations made in direct reference to this subject have tended to show a far-reaching influence on the part of the nerves; and while results entirely different from each other are seen, there can be no doubt as to this origin in at least a large number of cases. Not only have these conclusions been reached by means of anatomical and pathological investigations, but confirmatory proof has been added in the form of experiments, in which the conditions were artificially produced and were followed by the expected results, or rather by manifestations which had been foretold, and thus a demonstration of the truth of the original proposition was furnished. There is a large class of diseases of the skin in which we find quite a number of representatives of those forms due to some organic or functional change in the nerves. The class in which we find so many manifestations of the potent effects of nerve influence, is that which includes the atrophic forms of disease, in which either the entire skin is involved or merely certain anatomical portions of it. While it is true that these neurotic changes or disturbances are not always its primary or remote causes, investigation will show that they are directly interested in the production of certain atrophic processes. The case which I propose to outline is one in which the neurotic origin of the process observed admits of no doubt, no more than the presence of the atrophic condition. This very fact is one which renders it interesting, as also the probable remote cause

which was also determined with certainty almost. The case, in brief, is as follows:

CASE.—Grace B——, when she presented herself at the clinic, was seven and a half years old. From the mother it was learned that five years previously she sustained a severe burn on the anterior aspect of the right wrist, towards the radial side and a little above the proximal extremity of the metacarpal bone of the thumb. The burn which was sustained was estimated to be of the size of a silver twenty-five cent piece. This was probably an exaggeration. Following this injury there was slight anæsthesia of the forearm. The mother further stated that the arms were of the same size, so far as she could determine, at the time of the accident.

When examined by me in March, 1889, I found that hyperæsthesia existed to a limited degree, both in the forearm and upper arm, and this was more marked in the region supplied by the brachial and radial nerves. That is, hyperæsthesia was found on the inner and anterior aspect of the upper arm and on the anterior and outer aspect of the forearm. At the site where the burn had occurred a small ovalish scar existed, having the dimensions of a silver dime.

The child appeared fairly well nourished, although inclined to be anæmic. She was rather small for her age. The teeth were good, and the skin normal, the hair growth being about the average. There were no indications of any syphilitic taint nor any marks to denote a strumous habit.

The right arm presented atrophic rectilinear areas about three-eighths of an inch in width, and varying in length from three-quarters to two inches, situated upon the anterior surface of the arm and forearm, and apparently following or lying directly over the brachial and the radial nerves. These areas were five in number, the larger ones being situated upon the forearm. They were distinctly depressed, although this was more apparent to the sight than to the touch. The color was paler than that of the normal skin, but the presence of heat caused them to assume a higher color than that of the normal integument. Fine blood-vessels could be traced in these areas. Upon taking up the atrophied skin, its thinness in comparison with that of the normal could be easily made out

The right arm was also affected in another way·

There existed a certain amount of atrophy in the muscles, not only of the upper arm and forearm but also of the thumb, the fingers being normal. This atrophy was sufficiently marked to be perceptible upon inspection. In order to determine the exact amount of atrophy which existed the following measurements were made, whereby a comparison might be established:

	Right.	Left.	Difference.
Circumference of wrist - -	$3\frac{3}{4}$ in.	$4\frac{1}{4}$ in.	$\frac{1}{2}$ in.
" middle of forearm	$4\frac{1}{2}$ "	$5\frac{1}{4}$ "	$\frac{3}{4}$ "
" elbow - - - -	5 "	6 "	1 "
" biceps - -	$4\frac{1}{2}$ "	$5\frac{1}{2}$ "	1 "
" thumb - -	$1\frac{3}{8}$ "	2 "	$\frac{5}{8}$ "

When we compare the amount of loss with the measurements of the normal arm, it will be readily seen that the atrophy was one of a marked character. It was on account of this marked difference that relief was sought. While dynamometric measurements were not made, rough experiments readily demonstrated a perceptible loss of muscular power.

In an attempt to discuss the question of the etiology of this case, one point must not be lost sight of, viz., that there are two forms of linear atrophy, one being due to nervous influence of a direct or remote character, and the other, to mechanical causes. We may have the absorption of certain elements taking place through long-continued pressure, or we may have apparent atrophy through a stretching of the skin, as observed in the cases of obese persons and of pregnant women. In this last class we have as much to deal with a displacement as with an atrophic process, and in the case which I have reported, almost every cause but direct nervous influence can be easily eliminated.

A condition somewhat similar to the one reported is that known as "glossy skin," which is of distinctly neurotic origin, occurs upon the extremities, and is accompanied by a burning pain. Duhring* states that "similar changes occur in progressive muscular atrophy, due to disturbance of nutrition of the affected parts."

*L. A. Duhring. "Treatise on Diseases of the Skin." 1881.

Mitchell* has shown that nerve injuries will cause wasting of the muscles, atrophy of the skin and disappearance of the subcutaneous connective tissue. "Glossy skin" is said by Robinson† to follow wounds, besides the other causes mentioned by writers in general.

McCall Anderson‡ mentions a case of atrophy of the skin in which that portion supplied by the supraorbital nerve was affected. He also states that unilateral atrophy of the face is supposed to be due to permanent irritation of the cervical sympathetic. Brunner§ mentions a case of atrophy of the left side of the face in an epileptic woman. The atrophy involved not only the skin, but the muscles as well.

I have quoted these few examples to show the trend of opinion in respect to certain forms of atrophy, which resemble the one I have reported. A question which suggests itself in regard to my case is the following: Was the atrophy of the skin consecutive upon that of the muscles, or *vice versa;* or were both processes simultaneous? This, of course, cannot be answered, as the time which elapsed from the first period—that of the burn—to the period of examination, was too long. Moreover, the first observer was untrained and not capable of making any observations that would bear any weight. One fact noted by the mother, however, is reliable—that the atrophy of the skin and that of the muscles were progressive in character, the former increasing in extent and the latter becoming more marked; or, to express it more clearly, the atrophied portions of the skin increased in area and the arm became more shrunken.

Crocker‖ has devoted some considerable attention to the various forms of atrophy of the skin, and in his classification of them he gives the following:

---

* Weir Mitchell. "Injuries of the Nerves and Their Consequences." 1872.

† A. R. Robinson. "A Manual of Dermatology." 1884.

‡ McCall Anderson. "Treatise on Diseases of the Skin." 1887.

§ In A. Eulenberg and P. Guttmann. "Physiology and Pathology of the Sympathetic System of Nerves." 1879.

‖ H. Radcliffe Crocker. "Diseases of the Skin." 1888.

Atrophoderma { Neuroticum (glossy skin.) { Traumaticum. Non-traumaticum.

This would include "glossy skin" as the type and, of course, variations would necessarily exist, perhaps totally distinct, as much so as is morphœa from scleroderma, which are held by many to be different phases of the same disease.

While it is true that there is a tendency nowadays to eschew traumatism as a factor in the causation of pathological processes, we cannot but accept it in many instances, if for no other reason than that a better explanation cannot be furnished. In the case reported it seems plausible to me to assume that the atrophy of the skin and of the muscles were simultaneous. Not only this, but that the remote cause was the burn which affected the radial nerve and, through it, the brachial, in such a manner as to produce functional disturbance, if not actual organic disintegration of a more or less limited character. It would be a very difficult matter, on the other hand, to determine whether the sympathetic nerves were not also implicated to a greater or less extent, especially in view of the history of the case and of the narrow anatomical ties which bind these members of the nervous system to the others.

That general neurotic trouble caused the local changes is out of the question, as it did not exist, and would, no doubt, have produced entirely different manifestations. It is to be regretted that more detailed work has not been done in investigating the dermatoses of neurotic origin. The neurologist gives the skin but a passing glance, while the dermatologist devotes but little attention to the nervous system, so that in the recorded cases which we find of atrophy of the skin the history is invariably meager in one respect, as are also the clinical description and pathological investigation.

Neuric and Electric Forces.

(*Continued.*)

By John Schilling, M. D., Millstadt, Illinois.

REFLEXION is then always twofold; an impression or stimulation leads always firstly to vasomotion, and secondly to motion proper. However, both motions may be imperceptible, that is, the tonicity of voluntary and involuntary muscles merely may be increased. Thus whenever a current of physical N. is started in its course it induces an opposite one of chemical N. And *vice versa*, a current of chemical N. always induces one of physical N. in the opposite direction. This process of induction is then really reflex action proper. In other words, the simplest forms of reflexion or the natural currents (*vide* Fig. D), direct or indirect, are always primary effects or immediate results of the inducing currents. While a reflex act proper is the demonstration of a secondary or the induced current, whether direct or indirect, when the inducing current is of physical N., generated by external impressions, the resulting phenomenon has been called a reflex act when it was direct, and a volitional act when it was indirect. And when finally the inducing current is of chemical N., caused by internal activities, the resulting motions are called spontaneous; if the currents are direct it is automatic, and if they are indirect it is volitional spontaneity. That one slight impression may start a very intensive and extensive action, as a small strange body in the larynx causing a fearful and long-continued fit of coughing, is to be accounted for by the mechanical arrangement of the respective nerve-centers. A discharge in one center incites the action of others co-ordinated,

etc.; and the long duration of the act is due to a *vice versa* process, viz., one explosion furnishes stimulus and force for the next one, as in all regularly executed automatic motions. Such automatic acts are, for instance, circulation and respiration. When a nerve-fiber, motor or sensory, once transmits some N. it will not cease to do so until all the N. at its endings is united and has become latent. These ends are on one side peripheral end organs of sensory nerves and the terminations of vasomotor nerves, and on the other side vaso-sensory nerves or central nerve-cells and the terminations of the motor nerves in the muscle-fibers. Or when a nervical current is once started through nerve-fibers and cells it will continue until equilibrium with regard to positive and negative N. is established at its ends, as from *a*—*f* and *b*—*e*, Fig. D. We may explain this analogously to a phenomenon of electricity, viz., the tension of a battery. By increasing the tension beyond a certain limit it discharges, and this discharge is quite unproportioned to the increase: it is of much greater intensity. During its state of functional activity the molecules of the axis-cylinder in a nerve-fiber are in such a manner mutually related as to become particularly adapted for nervical conduction. Hence a nerve-fiber transmits oftentimes more N. as stimulus and subsequently as force than the original stimulation has generated.

A few words here on muscular and nervous tension. After the muscular tissue has become charged with its force—polarization of its molecules—beyond a certain limit, which we call the maximal tension, it will discharge. Any external influence—any stimulus—will precipitate this discharge before the tension reaches its maximum. The same phenomena with regard to spontaneous action or maximal tension occur in nerve-fibers and cells. This is the so-called irritability of the muscular and nervous tissues. Nerve-cells or centers, as we have seen, when charged over a certain limit (beyond that of the usual constant currents of N. (Fig. D) explode, so to speak, *i. e.*, they functionate. This has been called automatic action

and is therefore the circulatory and respiratory center of automatic centers. So also, other co-ordinated mechanisms in the spinal cord are said to be automatic. It is plain to us now, that this automatism is nothing else but reflexions of nervical currents. Though, usually, these so-called automatic acts are started from cells 2, Fig. D, by currents of chemical N. as stimulus, and they are, hence, the reverse of an ordinary reflex act. We shall, however, speak of this reversed reflexion likewise as an automatic action for convenience sake. More of this later on. We come now to the explanation of consciousness, or to the psychical phenomena in nature.

Consciousness.—The subjective existence of an individual being has been called its consciousness—its life, for no living creature is without sensation. Consciousness is always subjective. When it becomes objective it is no more consciousness itself, but only the demonstration thereof. And we cannot judge therefore of consciousness in other beings than ourselves but by these demonstrations or external signs. We cannot analyze the essential nature of our own subjectivity by means of these very same subjective states. Subjectivity is vibration of organic molecules, induced by the union of positive with negative N., or by a nervical current—be it within the plasma of the almost structureless amœba, or within the nerve-cell of the highly organized human body. This is a bold assertion and without any direct *a posteriori* proof. It is, however, a principle, based upon rational grounds and supported by all other principles or facts in natural science. Truly it is difficult or even disagreeable to assume that sensation is ultimately but vibration of animal molecules, yet we must not overlook that it cannot be anything else very well, unless we leave the scope of science and embrace again any of those old prejudices that had and still have such a strong hold upon the public mind. Nevertheless, as all new ideas, whether true or false, when we become more familiar with them, lose their strangeness, which in this case amounts to positive aversion—so this

materialistic principle will become in time an established fact, as far as facts and principles can go together.

Sensation and perception are identical. Their ultimate process is the same; both are states of consciousness. We give them different names only with regard to their degree of complexity, indicated by the lesser or greater co-ordination of the resulting movements. *A priori*, sensation and motion cannot occur separately—every afferent impulse is transformed into some efferent one. Perception is then sensation, taking place in the higher centers, where afferent impulses from several sense organs, combinated, induce an already more complicated motion than a simple reflex act of the spinal or lower centers. In other words, the motion is a co-ordinate reflexion, and the perception may be properly called co-ordinated sensations or an intelligent consciousness. From this it is evident that intelligence depends upon the existence of various sense organs and the complex arrangement of the nerve-centers. We shall divide these for convenience sake in lower, middle and higher centers in man as well as in the higher animals. The location of these three classes are: The lower ones are in the sympathetic system, spinal cord, medulla oblongata, corpora quadrigemina and geniculata, etc., briefly in the nuclei of all afferent and efferent nerves, or the lower centers are formed by those nerve-cells, directly connected to the nerve-fibers. To the middle class belong the great ganglia at the base of the brain, the optic thalami and corpora striata, and very likely the greatest part of the cerebellum. The higher centers lastly are composed of the convolutions in the cerebrum and in a part of the cerebellum.

Thus, consciousness is a vibration of animal molecules, due to the union of positive and negative N. or to a nervical current, which, being reflected, induces concomitantly muscular motions. Consciousness is therefore really a compound sensory-motor process. Let us illustrate this with an auditory sensation. The vibration of

molecules externally to the body, representing a sound, are transmitted through the nerves of hearing to the first-reached nerve-cells. Here a similar vibration is produced by the nervical current, which vibration is the objective aspect of that particular sound, as a subjective state. There is an analogous phenomenon in the conduction of sound waves by the assistance of an electrical current along a telephone wire. Whenever we speak later on of a nervical current inducing sensation, we must always think of this molecular vibration in the nerve-cells. Surely this train of reasoning is repulsive to a sensitive mind. But is it not just as repulsive to the feeling, although we ought not to ask anybody's feeling here, to assert—that some vibratory movement of a violin string is transformed within our body into the sensation of a certain sound, as it is to say that a similiar vibratory motion of some nerve-cell molecules represents, or is in fact objectively nothing else, but this certain state of our subjective existence? No matter how much we try dogmatically, or otherwise prejudiced, to conceal the abyss between the objectivity and subjectivity of our being, we shall never be able to fathom it. The only way to proceed at all is to accept a principle in order to accord outside facts with inside life—to establish harmony between matter and mind. And this principle we have repeatedly expressed: Subjectiveness is vibration of material particles; nervous and mental states are identical.

The Seat of Consciousness.—Consciousness, in its abstract signification, is located nowhere—does not exist. One cannot be conscious unless he is conscious of something. Any living being is conscious of the impressions to which it is exposed—it has sensations. The amœba, although it has no nerves, is conscious of its surrounding; this consciousness is, however, very simple. For there are no differentiated sensory organs, nor a nervous system in these low organic forms, to bring much variety into their subjective existence. Yet, we may assert with evident certainty, that the amœba even has more states of con-

sciousness, than one, and that they differ only with regard to their intensity. In the whole series of living beings the refinement and variety of consciousness hold equal progress with the improvement and diversity of organs—from a simple cell-consciousness to the deep thoughts and beautiful productions of our great geniuses. It is a mere process of evolution of the mind as well as of the physical body. Intelligence begins somewhere in this series. We should say rather, that we call any sensory-motor process intelligent, when it reaches a certain degree of complication and remains natural, *i. e.*, normal. The degree of intelligence then depends upon the complexity and yet harmony of the resulting motions, and upon the variety of the concomitant subjective states. Formerly it was supposed that man was the only creature with intelligence or reason and the phenomena, indicating the same faculty in the lower animals, were attributed to their instinct. But since that time many instances have been recorded, proving that this instinct and human reason are the same ultimately—that animals possess reason as well as man, only in a lesser degree.

If a nervous system exists in an individual, of course it is the seat of his subjective existence, concerning its totality, *i. e.*, in the nerve-cells, traversed by the nervical current of any afferent impression. In man, therefore, we must not locate consciousness to one part of the nervous system exclusively: it is now here, next there, continually changing its place, according to the kind of the respective sensory impulses. A simple sensation takes place in the centers or segments of the spinal cord, or in the ganglia of the cranial afferent nerves, etc., *i. e.*, wherever a sensory nerve terminates in the cells of a nerve-center, be it in a sympathetic ganglion, in a spinal segment or in a nucleus of the medulla, pons varolii, etc. For instance: A sensation of touch is felt where the respective afferent nerves enter the cells of the spinal cord—a sensation of light, where the fibers of the optic nerve reach the nerve-cells of the optic thalami, corpora

quadrigemina, etc. The nervical current then makes a simple reflexion. But whenever the impression is strong enough the nervical current goes further up to the brain—is indirectly reflected. Then the simple sensation becomes a perception; it induces more complicated processes of the mind; it is combined with other impressions, compared and acted upon, *i. e.*, the nervical currents involve a greater number and higher situated centers of the nervous system. The so-called motor areas on the convolutions are not centers for such co-ordinate movements as are produced by their stimulation. But the nerve-cells in them are connected to the respective co-ordinate mechanisms in the spinal cord, etc., through the corpora striata in a more or less uniform manner. This uniformity is evidently due to inheritance of such co-ordinately arranged organizations during a long lapse of time—evolution. The proper functions of these areas are, however, more important, belonging to a more complex degree of subjectivity to what are called mental states, whose usual motions, being indefinite vasomotions, do not clearly demonstrate these subjective states to the experimenter.

Attentive Consciousness.—We have introduced here this new name, to represent a certain kind of a sensory-motor process. Several sensations may occur simultaneously, but our attention can be occupied by only one at a time. And this process, regarded objectively, is that vibration of nerve-cell molecules, the combined intensity and extensity of which is greatest. The more intensive the nervical current is, the clearer is the sensation of the impressing object, and the sooner it leads to its perception and to its remembrance. The more extensive the union of positive and negative N. is—more nerve-cells being implicated—the more predominant is the consciousness of the impressing event. In other words, the more intensive and extensive the nervical state in some part of the nervous system is, the surer and the more it will involve connected and neighboring parts—or the co-ordinate centers. And by that means the muscular apparatus of other as yet

unimpressed senses is put to action—their sense organs are directed to the object, so as to catch its impression likewise. In this our attentive consciousness then figures the most impressive external event—that stimulation which generates the greatest amount of N. in our sense organs or afferent fibers generally. Through the visual sense—the most brilliant, through the sense of hearing—the most audible object attracts our attention, etc. Of course, other circumstances may influence and modify this process, for instance: If the less brilliant of two objects, coming to our sight synchronously, bears danger in it for our welfare, certainly our attention is directed to it. But then, the knowledge of its being dangerous—all the formerly experienced sensations—together with the perception of its present appearance make it really the most brilliant, at least the most important object to our mind's eye, viz., its nervical state is the most extensive one. This will be better understood later on. To repeat: That sensation, or series of sensations, is uppermost in or represents our present or attentive consciousness, in which the greatest amount of antipodal nervicities unites in one or several nerve-cell plexuses. The motions occurring at the same time may, or may not indicate the kind of sensation, *i. e.*, may not be very demonstrative. While nervical currents may pass simultaneously through a number of nerve-centers unconsciously (?), and motions result therefrom, automatically, the attention is occupied—our active subjective existence is represented, by the most prominent nervical state. Sensations may be numerous (?) at one time, yet to call our attention to them, to make them objective, they must necessarily be taken single, one after the other. Thus the most intensive and extensive nervical state overrules the other—induces co-ordinate and purposive motions, and this sensory-motor process we have called attentive consciousness, or attention.

When our attention is called to something and implicates the mechanism of speech, of course, this is nearly always the predominant subjective state, because it is then

most extensive. And such a sensory-motor process is usually named intelligent consciousness. Again, if we want to describe something, this higher mental or intellectual process involves so many cerebral cell-groups that our subjectivity cannot be occupied by another action very well at the same time. When we have several sensations, one is always ruling, *i. e.*, really composes our subjectivity. But then, a quick change is possible, one subjective state takes the place of the other, quite a different action follows—the result of a new impression. Those reflexions, unconscious and automatic, may also involve higher centers and leave behind impressions (in nerve cells), so that, after the currents of the present consciousness subside, the former may be felt too, and remembered, *i. e.*, the nervical state representing that sensory-motor process may become most prominent afterwards. This latter was, therefore, an undercurrent in our consciousness, so to speak. In that sense we may speak of a double and triple consciousness, and even of an unconsciousness. If the second reflexion takes place through the lowest centers, this double sensation (?) is not felt and remembered, and the resulting action is called automatic. Are we right to call an afferent impulse, passing nerve-cells, that is not brought to our consciousness —a sensation, when the former, for instance, is pre-eminenty occupied by something else? It is plainly the same nervical current, whether it is perceived or not.

Let us illustrate this: One is playing on the piano from notes, and talks simultaneously to a friend. There are, then, two separate sensory-motor actions in him. In the first the reflexion is from the eyes and finger-tips, etc., through quite co-ordinate mechanisms to the muscles of hand and fingers. This reflex act is usually the automatic one. The other reflexion passes from the auditory organ to the apparatus of speaking, through the still more complicated and variated center of speech. The latter process, being most extensive—most complex, usually represents consciousness. The first reflex act induces sen-

sations as well as the latter, but they do not play in our subjectivity as long as they remain less intensive and extensive. However, let the piece of music be new, difficult or very loud, then it will require our attention, involve more nerve-centers, and we are conscious of the music alone. Our faculty of hearing is directed to the playing likewise or exclusively, and we cannot converse intelligently during that time. We must stop one or the other action. Thus we have seen two sensory-motor processes—two reflexions of nervical currents—can occur synchronously, when the entire mechanisms—afferent nerves, center and efferent nerves, are different. The most intensive and extensive nervical state then represents consciousness, at least attentive, perceptive-intelligent, consciousness, whilst the other is more automatical and unconscious.

A priori, reflex activity cannot take place without consciousness. Sensation is never without motion. For there is union of the nervical antipodals in the cells of a spinal segment, which is equivalent to sensation. A case on record, that a girl in whom the upper part of the spinal cord was injured, remained conscious for half an hour, although the entire body, except the head, was paralyzed, does not prove that consciousness is only within the brain. Nor does this case justify the conclusion that the whole spinal marrow may be rendered inactive without any suffering of consciousness. But both these inferences are untenable, for, did the consciousness in this case, viz., that consciousness which can still make itself intelligible to us, remain as ample as it was before the accident? Has it not suffered by the loss of the subjective existence of the entire body represented in that part of the nervous sytem below the seat of injury to the cord? Certainly intelligent consciousness, in its totality has been reduced just as much as nerve-centers have been separated from the brain. We cannot directly demonstrate the foregoing assertions, nor can they be disproven by experiments, but according to the following way of reasoning we must conclude that they

are quite probably correct. A being is said to be conscious of an impression, if the latter produces movements of a complicated character indicating the respective kind of sensation, *i. e.*, differentiating it from others. Reflex actions are said to be simple movements without sensation; that is, however, properly not true. How do we become cognizant of the subjective existence of someone else; how is sensation rendered objective? Let us take an example:

A man is submitted to a painful operation on the leg. He sees the knife used, he feels the pain, and we say he is conscious of the act going on because he changes his countenance to one showing anxiety and pain: he groans, he cries, and he finally struggles with hands and feet. Impressions upon one or several senses, upon sight and touch in this case, viz., sensations of a complex nature—effect such movements, indicating consciousness. Touch, alone, without sight of the knife, would have resulted in the same phenomenon, and as it simplifies our explanation, let us suppose that to be the case. If now the spinal cord in the neck be divided, and the leg cut as above—motions resulting then are called reflex acts without sensation. What right have we to assume the latter movements to be ultimately different from the former—to be not accompanied by sensation? We have no right to do so, at all. That the features cannot grow indicative of pain; that cries are not produced; that a great variety of purposive motions do not result—all that is evidently clear, for the connections with the centers of complicated movements, with the facial nerve, etc., are destroyed. What is our right to suppose that the process, called consciousness, is in its ultimate nature anything else, but the same currents of nervicity, now going up to the cerebral, or higher centers, involving the facial, pneumogastric nerve, etc.? A reflex action as well, only implicating more complex organs, and hence giving rise to more variated sensory-motor phenomena. What, then, of sensation and consciousness takes place in the spinal nerve-cells, separated

from the brain, we cannot know positively, *i. e.*, by means of our direct subjectivity. The head can communicate its consciousness in a manner intelligible to us, but not so the decapitated body. We cannot expect that the subjective existence of either make itself known to us in a way that is not founded upon the mechanical arrangement in its nerve-centers, and in its centripetal and centrifugal nerve-conductions.

We have seen, even, that decapitated animals have executed motions which possessed evidently the character of being to the purpose (experiments of Pflueger). For instance: A brainless frog is touched upon its back with an acid—it wipes off the drop with the foot most convenient for it. Now this limb is cut off—it tries the stump, and as several trials are in vain, it makes the same movement with the foot of the opposite side. This is no more a mere reflex act; the frog appears to reason. It concludes that it cannot accomplish its aim with the one foot, and hence it tries to do so with the other. The whole process is simply the consequence of the mechanical arrangement in the remainder of the nervous system. Such a sensory-motor process occupies time, as the muscular actions are modified to some extent—the stump is moved at first, for the psoas, iliacus, etc., are still connected to the spinal centers, and so forth. Of course, this time is not spent in any such reasoning, as we do here for the frog. Yet these phenomena clearly demonstrate that in the spinal cord, of the frog, at least, centers for quite complicated movements exist, showing sensation and even some degree of intelligent consciousness.

Another experiment is often quoted in opposition to, but proves nothing against the preceding one. It is this: Two frogs—one decapitated, the other still enjoying its caput, are slowly being boiled. The result is that the headless frog can be heated without struggling against its fate, unlike its still capitated companion. Concluded—there is no consciousness except in the brain. Mistaken idea, however. The gradual increase of temperature, extending

besides all over its body, causes in the beheaded frog a gradual and general increase of the nervical currents through all the spinal cells; hence the motor impulses are sent likewise to all the muscles, simply to augment their usual tonicity. But as both flexors and extensors get their share synchronously and equally, no motions appear —the position of the frog remains steady until too great heat destroys the structural organization, when both sensation and motion are entirely out of question. In the complete animal, however, the centers for various co-ordinate motions and subjective states in the brain are still ready to functionate. The stimuli reaching these centers excite diverse sensations, and such movements as struggling, etc., whatever the arrangements of the nerve-cells and their afferent and efferent connections permit. The frog tries to escape the fate of being boiled, and reasons, it is said. Of course, the knowledge of previous impressions or the capacity to compare them with the present condition, and so to arrive at the conclusion that the latter is unusual and dangerous—in other words, the greatest part of intelligent consciousness—surely, is lost with the higher and more variated cerebral centers.

Thus, we have seen that consciousness, beyond what it appears to us subjectively, is molecular motion. DuBois Raymond said in his lecture, "On the Limits of Our Capability to Know Nature:" "All knowledge of nature rests as a last resort upon the mechanics of atoms. The knowledge of these mechanics is an extreme aim of the human mind, and, although they will never be observed by the senses, they are at least open to the comprehension of man." We say, now, more. We claim that vibration of particles is sensation—that this process has two aspects—that, to the observer, it is motion, but to the vibrating particles it is sensation. If we once have accustomed our mind to this fact (?) it will be quite comprehensible, and we must not look for more in human comprehension. We have called fact what is no more a fact than our present theories of atoms and molecules. DuBois Raymond says further on:

"The most sublime activity of the soul is in its essential nature no more incomprehensible than the first stage of consciousness or a simple sensation." We will add here still F. A. Lange's words. He says: "The difficulty to define the relation of the psychical functions to the nervous system is caused by our looking for the explanation in the personification of abstract ideas in place of our relying upon the mere conception of reality. Let us try," he continues, "to explain the psychical process from the simple succession of natural events belonging to it—not from the entity—the mysterious soul. Then we may easily comprehend that in these already so complicated effects of sensation and motion is laid the foundation for the explanation of the most intricate psychical phenomena." We learn, also, from him, that that peculiar process of reflexion was already repeatedly conceived as the fundamental element of all psychical activity.

Pain and Pleasure.—Any change of the previous state in the nerve-cells, any increase or decrease induces sensation. If this change is sudden, the sensation will be an unpleasant one of pain or terror; if it is gradual, the sensation will be pleasant. What difference is in the pain if resulting from a sudden increase, or from a sudden cessation of the nervical current? Let us illustrate this: Firstly, the pain from any abrupt increase. A lash with a whip is a sudden shock to some tissue-molecules; it augments their vibration greatly in comparison to the neighboring uninfluenced molecules, and likewise the current of physical N. is greatly increased from these parts to the respective nerve-cells. Some time will elapse before this intensified vibration and current of negative N. has been reduced to its former degree—just so long the pain will last. Gradually it will lose its intensity, in proportion as the vibration of molecules and the subsequent generation of physical N. declines. Secondly, any interference with the current of N. through the sensory nerve-fibers causes pain, and its intensity is also proportionate to the amount of nervical currents that have been stopped. For instance:

The tissues are severed with a knife; some nervės are divided; their currents of negative N. suddenly cease, and pain results. Its location is, of course, not in those nerve-cells which are severed from their end organs, but in the adjoining cells, and is due to the variation of the nervical state in the two different cell-groups. The pain is severe, as we have said, in the same ratio with the intensity and number of interrupted currents. The pain will be more intense if the previous currents were very active, as in a part highly organized, or congested, or even inflamed to a certain extent, for now the change can be greater. Whenever there is danger for the integrity of the tissues, whether it be from too much or from too little generation of N., sensation of pain will exist. It is nature's necessary provision to create such subjective conditions of pain, terror, etc., in order to make us avoid danger and destruction, which we would not do if it was not for pain, fear of death, etc.

Pleasure, well feeling, lust, are gradual changes from the previous states of consciousness, either an increase or decrease of the nervical currents. Of course we treat here of the grosser bodily conditions, but also the emotional or so-called psychical processes, are subjected to the same laws, for the difference between the two is only in the locality and complexity of the concerned process. Well feeling, then, is a gradual change from one subjective state into another; hence it differs only in degree from pain, and not in its essential character. So it is pleasant to change from warmth to coolness, or *vice versa*, within a certain limit, which again varies according to circumstances, and then what is delightful at first becomes painful when intensified beyond this limit. We shall refer here to Aristipp: He differentiates two forms of sensation; one that originates from soft movements—lust, well feeling—the other, which originates from rough, hasty movements—pain, discomfort, both with respect to the so-called spiritual and bodily state of our subjectivity. Anything gradual is pleasant—anything sudden is disagreeable.

Soft and gliding impressions give us enjoyment, shrill and glaring ones are repulsive. This difference of pain and pleasure exists with every one of the five senses. However, it is greatest with the sense of touch, and becomes gradually less with taste, smell, hearing, and it is least with the sense of light. The reason for this is obvious. The amount of physical negative N. is reduced in the above succession, as the process of its generation becomes finer; hence the variation of the nervical states, *i. e.*, vibration of the nerve-cell molecules may be greater, and the sensation may be more intensely painful or pleasant with the sense of touch than with the other four senses. We may end this subject by the following recapitulation: Deviation of the present state of the nervical currents, either increase or decrease, gives rise if gradual, to pleasure; if abrupt, to pain.

Pain and pleasure are subjective phenomena. They are more abstract significations, denominating the subjective aspects of the simultaneous vibratory processes in the nervous system with regard to their totality. As consciousness, viewed objectively, is merely a motion of material particles, so is ache or lust an expression for some variation in this vibratory movement. The exact situation of painful or pleasant sensations is most probably in those nerve-cells that are reached first, viz., in the spinal cord and sympathetic ganglia, although many of the external signs show a subsequent involvement of more complicated nerve-centers. If we pinch the leg it is pulled away, indicating pain, and subsequently the countenance assumes certain features which we call painful, and sounds are given off that have, it is said, a painful accent. Now, if we divide the facial nerve, that respective expression of countenance cannot occur. If the apparatus of voice is deprived of its innervation, no cries can be produced. But the person can still pull his leg away, and if requested, can write down that he feels pain. Then let us separate the spinal cord from the brain, somewhere high up in the neck. Now he can no more

execute such complicated movements as writing, the nervous mechanism of which is in the brain. But still the leg is moved in the same or a similar manner as before. Is there no more pain in the cells of the spinal cord because it cannot be shown and understood so distinctly? His brain, surely, does not feel the pinch now; intelligent consciousness is gone, but there is still pain—one kind of consciousness—in the lowest nerve-centers, which then can only be indicated by those parts still in connection with these centers, and only in such a manner as the remaining single organization permits.

Emotion.—Emotions are but a variety of sensations. They are more general though less intense states of our subjectivity. Accordingly we distinguish two principal categories of emotions—painful and pleasant. The first have mostly a depressing and the second usually an elevating character. They depend, therefore, on the same change of the previous nervical state: a gradual change, and one more uniform throughout this and all the other nerve-cell groups gives rise to pleasant emotions; and a more sudden though general increase or decrease induces painful emotions.

This pain or pleasure in emotions is not so acute as in simple sensations, for the vibrations of the nerve-cell molecules in the former are not quite so circumscript as in the latter. The subjective state in emotions is more widely distributed throughout the nervous system, making the emotions differ from sensations—that we regard the former as psychical and the latter as more bodily states. Correspondingly the muscular motions concurring with emotions are widely spread. They are always vasomotor disturbances accompanied by voluntary or involuntary actions. The latter are paralyses, or spasms of voluntary muscles, as the most extreme results which belong already to pathology, viz., they are abnormal. However, these phenomena appear, though in a lesser degree, in all emotions—for the muscular weakness in wrath, terror, is nothing but the beginning of a general paralysis, and

the exaggerated and incoherent reflex acts in a fit of passion are but short of a general convulsion.

A gradual and general increase or decrease of the nervical currents then gives rise to a well feeling, as attends pleasant and tranquil emotions, whilst a more or less sudden change is not any more so pleasant, though it may be induced by joyful tidings. Such a sudden increase in one cell-group, and, of course, a like decrease in another, causes that vague sensation of oppression and suffocation, which we all have felt sometimes in terror, sudden joy, etc., and its intensity depends on the amount of variation from the previous and the surrounding nervical states. The disagreeable feeling of fear, anxiety, etc., is a similar state, but slighter and more lasting in degree. In pleasant emotions there is a general increase of vital phenomena. The heart beats firm, the respiration is free, the tonicity of the entire muscular structure is improved; the body is elastic and the mind buoyant. Agreeable sensations give rise to such a state of well feeling; so do also pleasant news or joyful anticipations. They start this process within the nerve-cells, acting as stimuli. A few nerve-centers are involved at first, by combinations and all possible variations, association of ideas, the subjective existence of the individual becomes then more and more complex; the nervical currents pass through a greater number of nerve-cells, and the molecular vibrations increase proportionately. The entire activity of the being, physical and psychical, is elevated. As soon as such a state passes into excitement, after a certain limit is exceeded, vasomotor disturbances appear, or rather become more marked. The face pales or flushes; its vessels contract or relax; the vascular constricting force, negative physical N. goes through some nerve-cells, and consequently through some motor areas to a greater extent than through others, producing those various states of our consciousness. For the same reason the heart afterwards beats weaker in proportion to the preceding excitement—so that excessvie emotions and muscular

actions are dangerous, although secondarily, by heart's paralysis; a sudden union of all N. occurs in nerve-cells and muscles, exhaustion of their respective forces, no more remains to supply the heart—therefore, subsequently, the general state of elasticity makes place to the opposite one of relaxation, paralysis of the striated or voluntary muscles; the positive chemical N. is consumed in them, and in the nerve-cells to the same extent as the negative physical N.

Unconsciousness.—This word is really a paradox. As consciousness or simple sensations are synonymous with life—are induced by nervical currents through nerve-cells, there must be always some sort of subjectivity in a living being. However, this union of negative N. with positive N. in the nerve-cells, and the subsequent vibration of molecules represents consciousness only then if it varies in intensity from the previous state, or from the state in the surrounding parts of the nervous system, and the greater the variance the more positive is the consciousness of the external cause—this is, really, already attentive or perceptive consciousness. If the nervical currents are everywhere the same, uniform in all nerve-cells, no particular motions will result; subjective states are not intelligently demonstrated, although they do exist. Again, if any external event impresses our senses unaltered for some time, the consciousness of it will disappear unless our attention is fixed upon it by other impressing circumstances which continually add new stimuli to the already existing ones. This may be explained by the fact that some communicating fibers, from cell 1 to 6, and from 5 to 2, Fig. D, have gained in that time the capacity to transmit the nervical currents on that their shortest route —direct reflexions—to increase blood-pressure and the tone of the muscles in general. So, that now the currents do no longer traverse the higher centers, until other events, connected in some way with the former—associated ideas —establish its attentive consciousness again. This disappearance of a still existing sensation (for the impression

and its nervical currents still remain) from our attention is usually not very sudden, but quite gradual. For example: One becomes accustomed to the uniform noise of a mill so that he can even go to sleep in or near the mill. The negative N. of the auditory impressions after awhile does not travel any more through the complex centers in the cerebral convolutions, and the vibration of the nerve-cell molecules in the spinal segments (auditory nucleus) alone represents consciousness then, which is its simplest mode or sensations proper, and as we are usually unable to remember these impressions (*vide* "Memory"), this has been wrongly called unconsciousness.

Sleep.—Absolute unconsciousness does, therefore, not exist. If the eye is closed visual sensations will not take place. If no sound-wave reaches our ear, auditory consciousness will disappear. But a few sensations do occur all the time. Somewhere the body molecules are in contact with other molecules or with themselves—the nerves are impressed. These impressions induce subjective states, even during sleep. Between waking and sleeping is thus no ultimate difference. They differ only with regard to the degree of activity of the nerve-cells and fibers, and the number of nerve-centers implicated by it. The fewer impressions are made the more uniform are the currents of N. through the nerve-cells—the simpler is the subjectivity the less muscular actions occur—the deeper is sleep. The most active consciousness and the most profound sleep, are only the highest and the lowest degree of the functional activity of the nervous system, and, indeed, of the whole body. In order to illustrate our assertion, let us watch a person going to sleep. It is dark in the room, or his eyes are closed—no impression of light can affect him. It is quiet, or he buries the head in a pillow; the noise dies off in the distance; no auditory sensations, or almost none are within him. The organs of taste and smell are inactive; they don't disturb him. Only a few and vague tactile sensations he is aware of, and even these disappear from his consciousness bye-

and-bye, because they remain continually unaltered. The currents of N. become gradually more uniform; the nervical states in the various centers more tranquil, the molecular vibrations less and less intense, and they assume throughout the body more and more the same degree, fewer and fewer muscle contractions take place; consciousness has reached its minimum—and we say now the individual is asleep. Especially there is then absence of nervical union in the higher strata of the brain, in the gray matter of the convolutions, the seat of memory and other complicated mental phenomena. Now, we shall arouse that person. We shake his arm, some disturbance, he turns on the other side, a little awake. We shout in his ears, more impressions, he sits up in the bed, opens his eyes, still more awake. The visual sensations, added to the others, then complete his awakening. He goes on all day, moving about, exposing himself continually to impressions of various kinds, which in their turn cause —rather determine all his actions, and *vice versa*, until at night there is again a decrease of all the vital processes in his body, leading to sleep and recuperation.

Thus in sleep muscular activity is reduced to a minimum. It needs a suspension, though this rest, even, is but relative, during which the waste is compensated more fully, and the tissues reconstructed to their normal condition as nearly as possible. This compensation is going on with the decomposition, even. If a muscle relaxes after a contraction immediately rebuilding begins; the next contraction, however, sets in before it has been quite completed; at the third action it is still further from being done, until, finally, the muscle wants a longer time of rest for reconstruction. The chemical N., chemical activities become less and less, down to exhaustion, when the muscular tissues have lost their integrity and refuse to act. We are tired out, it is said; *vice versa*, the physical N. grows less and less synchronously; for when muscular actions cease physical processes diminish likewise, which is easily explained. Thus, also, the nervous system wants

a pause for recuperation—sleep. The chemically disintegrated nerve-cell molecules have to be reconstructed, and this is best carried out during a minimum of vibratory motion, or rest. The heart, the respiratory muscles and their nervous mechanisms have rest after each single action, which pause lasts just long enough for the necessary compensation to take place, for heart's activity and respiration go on uninterruptedly during sleep. That is due to the arrangement of the respective centers with their appendages of afferent and efferent conductors. But even these functionate less actively when the being is asleep than when it is awake. As the two actions of circulation and respiration are isolated from the general machine of life more than others, and as they are essentially quite monotonous, *i. e.*, recur always in the same manner, they do not affect consciousness; sleep is not disturbed if they are regularly executed. Thus we have determined that the medulla oblongata—center of respiration, sympathetic—center of circulation and spinal-cord center of the now and then recurring reflex actions remain active to a greater extent during sleep than the higher centers in the brain; the latter, too, cannot very well stand a continuous strain, being more complicated, hence less firmly organized than the lower centers.

Memory.—Human consciousness is located in the cells of the nervous system, either in the brain, spinal cord or in the sympathetic ganglia. Correspondingly there are different modes of consciousness. A simple sensation takes place wherever a sensory nerve reaches a nerve-cell in the spinal segments, etc.,—sensational consciousness. Perception and attention implicate a greater number of nerve-cells, higher cerebral centers — perceptive or attentive consciousness. It is further on more or less emotional, according to the violence or tranquillity of the respective nervical states of the whole body. The repetitions of previous subjective states belong to the phenomena of memory. There the vibratory process in the nerve-cells representing respective memorized inci-

dence is repeated. A first impression upon sensory nerves generates a certain amount of negative N.—starts a certain current of physical N., which travels up certain nerve-fibers, traverses certain nerve-cells, and induces there a certain molecular vibration. This vibratory motion is equal to that respective sensation, and corresponds in all its degrees exactly to its external physical process. One set of molecules vibrates with this intensity, and in one plane, another set with a different intensity and in a different plane; one set is composed of so many, another set of a different number of molecules. By variation and combination of these differences we can easily assume an almost indefinite variety of subjective states, for such a subjective state is composed of the whole series of momentary impressions in their regular succession, belonging to the complete event. Now, there is a certain limit for the intensity of the molecular vibration, above which it is consciousness, and below which the latter is abolished; although the vibration goes on in a weaker degree, it is true, but retaining its original character (*vide* " Attentive Consciousness "). It needs only to be reinforced, so to speak, in order to give rise again to the same sensation as before. In time the vibration and the position of the molecules will lessen or change entirely in consequence of their friction with each other, or of new currents, due to different sensory impressions passing through the same nerve-cells, *i. e.*, forgetting of old facts and establishing new ones in our subjectivity; and in order to refresh or strengthen the memory of an occurrence we have to repeat it, viz., we must expose our senses to the same impressions again and again. The process of memorizing is then as follows:

Every subjective state, and hence every idea in our memory, is made up of more than one sensation, generally of a considerable number of them, forming a more or less connected series; and their corresponding vibrations take place either in one cell or in several, but usually agrouped nerve-cells. Now, if any individual impression or more of

them, belonging to the concerned idea, is being repeated, all the molecules will be put to vibration, representing the whole series of perceptions of the previous subjective state, or the total event, with all its coincident sensations, will reappear in our consciousness. The same or similar nervical currents passing up the same nerve-fibers and going through the same nerve-cells intensify their molecular vibration, and by inducing other currents through adjoined or connected cells, intensify the vibration of their molecules likewise—association of ideas. But as any one sensation, for instance that of red, comes up in so many connections it must be particularized until it is sufficiently distinct or indicative of the respective event. For otherwise, by seeing a red object, any occurrence or impression in which the color of red plays a figure, may be recalled to consciousness, as everyone has frequently experienced. The more pointed or definite the question is, the easier and surer is the answer—process of recollection. The science of mnemotechnics is founded upon these facts. *A priori*, we conclude there can never be an idea of something which has never impressed our senses, in its totality or in its parts. Such abstract notions of time, space, etc., do not affect our senses, hence we have no real idea of them; we can conceive them only when we apply them to concrete conditions, as actions and objects. Ben Akiba's saying, that there is nothing new under the sun, is quite correct after all. And all inventions, inductive or deductive, and conceptions of new ideas, are but the result of combinations and applications, comparisons and variations of already existing perceptions.

Like or similar impressions produce equal or similar currents of physical N., which travel up through the spinal nerve-cells and create there the same or similar sensations. And, when the communicating intraspinal fibers have been adapted already by previous and frequent uses the currents go higher up to certain cells in the brain and refresh there likewise the corresponding vibrations which have existed in a more or less pronounced degree since the first

like or similar impression. At the same time all the molecules in that cell or group of cells are drawn into co-activity by means of inducing nervical currents through the respective adjoined cells, which represents the repeated or memorized consciousness of the whole series of impressions connected with the first or stimulus proper. The current of N. through the last reached cells—cells of memory we shall call them—not only reinforces that particular vibration which corresponds to the one repeated impression but also refreshes by the induction process the molecular vibration in all associated nerve-cells without changing its original character. In this way the entire series of previous sensations is reproduced in our consciousness—association of ideas—which process has been called an act of recollection.

A priori, it is obvious that we cannot talk of locating memory, as a whole, in a circumscript part of the brain. We may imagine that the seat of certain events or objects in our slumbering consciousness is restricted to certain nerve-cells; but memory in its totality is everywhere, each cell, even the amœba, possesses some. Memory, therefore, holds equal step, in regard to its perfection, with the complexity in the organic arrangement of each animal being. It is just that much more varied; hence more perfect, in man than in the amœba, as the former's composition is superior to that of the latter—evolution here also. However, what it gains in complexity it loses in stability. With respect to the memory of learned accomplishments, as the creations of Kant, Mozart or Shakespere, etc., we can claim with evident certainty that the cells in the gray matter of the cerebral convolutions lodge the greatest part, or rather, all of it. The lower centers—spinal and sympathetic cells—cannot well serve as the seat of memory, because the impressions upon our senses and subsequently the respective molecular vibrations in these cells are ever changing. How often do not, for instance, the images on our retina change even only during a day? The succeeding wipes out, so to speak, the

preceding continuously, on the retina as well as in the first-reached cells. But from this place the nervical currents are individualized. The same or like currents take their own separate fibers and go always through certain cerebral cells, which cells are then the seat of memory, for that image of an object or action. These cells are the cells of memory.

We see, the number of fibers and cells being limited, too many impressions cannot be memorated. The memory of an individual cannot be indefinitely perfected; it eventually reaches its extreme possible end. Then the later impressions will wipe out the earlier ones, which occurrence is called forgetting. And for every newly memorized item an old one will disappear—is forgotten, *i. e.*, the vibrations representing the latter item are succeeded by the molecular motions of the former or new item in the same nerve-cells. The power of memory, therefore, has all degrees, and it depends upon the number of individual fibers and cells in the middle and higher nervous centers. One whose fibers (intraspinal and intracerebral or commissural fibers) adapt themselves easily to the conduction of certain nervic currents, memorizes easily but also forgets quickly. And if the number of his fibers and cells is very great, he has a large memory and a quick one. And if he has but a few fibers and cells his memory is small and weak, viz., short lasting. In another the fibers do not adapt themselves so readily; he is hard to learn; but if his fibers and cells are very numerous he can memorize a great deal and does not forget soon what he has once made his own. But if the number of his fibers and cells is rather small he is called obtuse and the items he has memorized at last are only very few. That individual, hence, has the most powerful memory who has the greatest number of nerve-fibers and cells, and which are not adapted too readily to different nervic conductions; in other words, in whose organization (of the nervous system of course) the complexity and stability are most harmoniously balanced—the result of evolution.

Thought.—Thought (association of ideas) is usually started and carried on by sensory impressions. It is guided, so to speak, by external original sensations, commonly by visual and auditory sensations; but it is composed mainly of repeated, memorated, associated sensations. The respective ideas (by ideas we understand any series of subjective states, be they made up of sentences, words, images or of any other compound sensory impressions) are lodged in certain cells by causing certain molecular arrangements and vibrations in them. These subjective states then, are repeated by nervical currents passing through these very cells. The motor part of these processes is very complex, but usually not very demonstrative, as it implicates the muscles of the eyes or ears, and mostly of the articulation. If the currents are of physical N., the manner of such repetition has been explained before, under the chapter of "Memory." But if the inducing currents are of chemical N., not corresponding to any distinct and individual impression, they may take their course accidentally and promiscuously, *i. e.*, through any cells or centers, increasing their molecular vibrations and repeating in our subjective existence the ideas, lodged in them and their respective motions. We have said chemical currents would pass through any cell-groups; but we must specify our assertion, for they pass ordinarily through cells, representing ideas that are most prominent in our subjectivity, and the resulting movements are actions of habit, *i. e.*, impressions that we have been exposed to or actions that we have executed most frequently, of late or in former times—habitual sensory-motor phenomena. To illustrate: A lover will think of his sweetheart, a musician of his present composition, and an author thinks of his latest work; even when their senses are not directly occupied by the object, it will constantly recur to their mind. When we are exposed as little as possible to sensory impressions, our thoughts are started by currents of chemical N., which process may then be called spontaneous, although it is really the overflow of chemical N., the result of active

chemical life in our body—the explosion of nerve-force, deposited in the nerve-cells, as it has been called. When we are entirely free of all external influences, which is rarely, if ever, the case, at least when our sensory activity is at its minimum, as during deep sleep—then our thinking is quite promiscuous, and may still more be called spontaneous. However, in the instance of the musician, painter, sculptor or author working on their productions—in volitional thinking (*vide* "Volition")—sensory impressions are continually present, to start or guide the respective thoughts.

We have defined an idea to be any subjective state. It may be composed of any sensation; images of objects or actions may figure alone in our consciousness, but usually they are accompanied by the respective denominations—words or sentences—which latter mode of consciousness we shall call lingual, because language takes part in it. Thinking, therefore, is not only executed in words, but also in pictures. For instance, the consciousness of mute subjects, and who are generally deaf, is formed, in its greatest part by visual sensations, and when they can read and write, by tactile sensations also. In animals the sound of cries, as barking, neighing, crowing, etc., takes the place of human language; however, their visual consciousness is by far greater than has been hitherto supposed; and other senses in them, as of smell and hearing, are much more acute and sometimes more varied than those of man. We cannot help but admit that such sensations make up their subjectivity. In some people, whose power of conversation is very great, who are very talkative—nearly every subjective state is accompanied by the corresponding sounds of spoken words or sentences, and the mechanism of articulation is so arranged that they move its apparatus correspondingly, either to talk aloud or whisper at least. The center of language in Broca's convolution is only such a center in as far as the motor fibers for bilateral action concentrate here; but we do not believe that such a variety of words and sentences as are possible can all be lodged in

so small a place. Others, who are more silent, are often conscious of objects and actions without any language accompanying it. They bite their teeth together, or clinch their fists, smile or weep, etc., instead of talking. It is difficult for them to express in words what they think or feel, they are not used to it; they are silent, affectionate beings. It is plain to everyone, that animals cannot think in words, as we do, nevertheless, they think in their way. It is proven sufficiently that they have memory and such other subjective states corresponding to our own thinking. Of course this is less variated and less complicated in them than it is in man, who by means of his language especially has attained superiority over all other living beings—the result of evolution. The subjectivity of animals, hence, is a similar idea—motor or sensory-motor process (molecular vibrations within the animal tissues), as in man, becoming more and more simplified through the entire scale of beings down to the structureless amœba.

There cannot be sensation without motion, or the reverse; no reflex action without consciousness—this principle we have laid down before. Often we do not seem to move actually during mentation; but, then, most mentation, ordinarily so called, viz., lingual consciousness, is carried on in visual and auditory sensations, which are extremely various, but caused by only small amounts of uniting N., as light and sound are but subtle physical processes, hence the motor impulses, reflections or inductions of nervical currents, are but slight and easily overlooked; or, in going downwards, they become expanded over larger areas through the basal and spinal ganglia, and the muscular actions consequently are indefinite and usually are a mere increase in the general tonicity of the whole system. Again, these processes, being least automatic, *i. e.*, least direct, result in movements which do not stand in a certain well recognized relation to them, for ideational consciousness is hardly ever repeated in quite the same manner. Thought and all mental oper-

ations are but the subjective side of sensory-motor phenomena, but certain states of consciousness. To repeat: Like the currents of electricity (union of positive and negative electricity) through a wire produce vibration of molecules—sound, heat, light, so the union of positive and negative N. within the nerve-cells produce vibrations of their molecules, and these motions are simultaneously subjective states.

Thought, then, is a combination of present sensory-motor processes with repeated previous ones—association of ideas—memory is always intermingled with thought. It is started sometimes by external stimuli, physical N., and sometimes by internal agencies—chemical N., but it is usually guided into certain directions—it is governed, so to speak, by sensory impressions, occurring almost continuously. This directing and ruling of our thoughts is due to education, habit, and the like circumstances. Thought, therefore, is composed of a train of sensations, partly produced at the present time, and partly repeated in memory, but all more or less connected together—associated. Thought can be occupied by only one event at a time; either the sound of spoken words or the sight of objects figuring in an action. This is so of necessity, for the muscular motions, speaking, writing or acting, indicating or executing the respective thoughts, must not be mixed up with other actions if they shall not lose their character and fail to accomplish their purpose.

Dreams.—Also during sleep, memory and thought are active to some extent, causing states of partial consciousness that are called dreams. It is obvious from the foregoing that we also cannot dream of anything unless it has formed a part of our consciousness before. When at sleep our senses do not functionate at all, or but very little normally. Now, a late and heavy meal, accumulation of fæces, a full bladder, an uncomfortable posture, etc., in fact any irritation, any appreciable change in the quiet generation of physical N., induce a partial subjectivity, or dreams, and according as these sensations are painful or pleasant, the

dreaming will be horrible or agreeable, *i. e.*, the nervical currents through the sympathetic cells give them such an emotional character. So far dreams are abnormal, and should not occur under healthy conditions. On the other hand, dreams that befall a healthy being are caused in a different manner. An active life, abundant chemical and physical agencies during the day, make the sleep frequently interrupted by dreams. These agencies are not subdued completely during the night, and according to the location of the cells where the nervical currents pass through, and their memorated contents, sensations will appear, and linked together, form dreams. Sometimes impressions upon one or the other of the five senses start certain currents of physical N., involving certain series of nerve-cells, and hence producing certain sensations of that or similar quality. The muscular actions of dreams are necessarily but slight, such as smiling, crying, talking, etc., and the accompanying emotional states are not very intensive, either, for if too great, the individual wakes up. There are, then, no distinct and definite sensory impressions during sleep to guide the subjectivity into certain definite channels, hence the character of dreams is quite accidental. Sometimes we dream of late events, sometimes of facts which happened a long time ago. And again, as we cannot refer by means of our senses to the reality of our subjective states, *i. e.*, our sense-organs are not directed to the external influences causing such subjectivity, and hence do not convince us of their reality or unreality—fancy and imagination have full sway over our partial consciousness, viz., associations of ideas are accidental, giving rise to arbitrary, unreasonable, and sometimes quite impossible combinations. In such a manner we can account also for the reappearance of old events and objects long forgotten, into our consciousness, when we are awake and our senses but little occupied, as in an after-dinner repose, etc.

(*To be Concluded.*)

A CASE OF MULTIPLE NEURITIS.

By Robert Funkhouser, A. M., M. D., LL. B., St. Louis.

EVER since Leyden drew his clear clinical picture of this disease, the cases reported in the medical literature of the day have been constantly increasing in number. Undoubtedly many cases of polyneuritis in the past have been overlooked or mistaken for other diseases. Probably, some considered locomotor ataxia among railroad men, should have been classed under this head. It is sometimes difficult, unless one is thoroughly acquainted with the various forms and symptoms of the disease, to distinguish it from a number of others, especially where only a few nerves are involved. The case to which I wish to call attention is of peculiar interest in that it resisted all the ordinary methods of treatment and the patient was restored to his usual health by the employ ment of hypnotism.

On December 11th, 1889, I was called to see a man, twenty-six years of age, who complained of pains, both in his upper and lower extremities, especially in the latter, from his knees down, accompanied with derangement of the motor and sensory nerves, the sensory symptoms predominating.

Upon inquiry I found that his father had been a drinking man all his life but had not suffered from any neuroses. The mother is alive and in fair health. The patient had been accustomed to take stimulants ever since he was ten years old. I suspect from what I have learned that he took too much at times, and though he never had delirium tremens or been on sprees, he had used alcoholic drinks every day. He was also an excessive smoker of cigarettes, which I believe had been injurious. Two years previous to the illness

now reported, I treated him for malaria, from which he recovered quickly. During the last year and a half, on meeting him occasionally, I noticed a difference in his gait but did not speak of it to him. It was a peculiar walk which we sometimes notice in people who have callosities on the soles of the feet. When I saw him in December, with his other symptoms, there were, as he described it, aching pains in his back and trunk, presenting those very similar to neuralgia dependent on cold and malaria. He had no fever when I first called, and during the course of this attack I noticed that the temperature did not rise more than from five-tenths to seven-tenths of a degree, and then only occasionally.

On examination of the urine I found, that the specific gravity was above the average, the quantity was less, a marked increase in the amount of phosphates, no albumen nor any casts, but some cholesterin. The patient was slightly icteric. On use of the percussion hammer the knee-jerks were found to be absent. The æsthesiometer demonstrated that there was present, in some parts anæsthesia, and in others, hyperæsthesia. There was numbness in the fingers and toes and unpleasant sensations as if they were going to sleep. One very prominent symptom was his inability to grasp articles or to distinguish them unless seen. The pain was most severe in the course of the nerves of the lower extremities; apparently, there was more tenderness in the anterior than posterior parts of the legs, but more pronounced on the plantar than on the dorsal surfaces of the feet.

The feet, particularly the big toes, the hands and fingers, were slightly swollen, his toes presenting rather a reddish-purple appearance. His locomotion was greatly impaired so that he was unable to walk or stand upon his feet. He scarcely felt electricity when applied. During the attack there was no delirium, no muscular atrophy, no disturbance of bladder or rectum. There were symptoms that are found in various diseases; and when we take into consideration the varieties of multiple neurosis,

such as rheumatic and alcoholic, and indeed the possibility of the peripheral origin of locomotor ataxia, we can understand the difficulties at times in arriving at a correct diagnosis.

I am strongly inclined to think that the patient's condition was connected with his alcoholic habits, and, possibly, the excessive use of tobacco may have had some influence. Although some of the characteristics were ataxic and hyperæsthesic the patient had no double vision, no inequality or immobility of the pupils, no iridoplegia, no girdle pains, no sense of constriction of the chest. The chief point indicating that it was of this alcoholic variety being its favorable course and ending comparatively early in recovery. He was confined to the house for two months, five weeks of which he was in bed.

From December 11, 1889, I treated him continuously until January 18, when hypnotism was begun and he so far improved that he went to work on February 15.

I had administered at various times the salicylates, the iodides, the alkalies and quinine, particularly the salicylates, and also applied electricity in various forms, but the patient did not improve. I informed his friends that I was unable to do any more in the ordinary way of practice and suggested to them that they call in another physician or allow me to use hypnotism. After fears and trepidation had been quieted, consent was given. I was agreeably surprised at the result; the patient proved to be one of a class who can be hypnotized without being thrown into a profound sleep, though subsequently he was. He exhibited the phenomena of *fascination*, subject to my will, his eyes remaining wide open, with a glassy stare. The improvement in his hands from the first hypnosis, was very perceptible. I hypnotized him two days in succession, and after an interval of two days, repeated five days in succession. His dynamometric force during the disease was at times *nil*, at others nearly so. After the third hypnotization he was able to produce a pressure of twenty-five pounds, and within three weeks from the

first, which was the thirteenth hypnotization, it was increased to seventy-five pounds. The fingers were improved by the first hypnosis, and their normal sensation returned to them on the tenth. After the fourth hypnotization he was able to walk around the room.

During the treatment, after he was able to walk, and at the time of his discharge, upon being directed to stand on one leg, he was unable to do so without falling, both with his eyes open and closed. He was unable to walk across the room when his eyes were closed.

His general health improved at the same time. He went out for five days in succession, and on February 11th presented himself at my office, where I exhibited him to a number of people who had the opportunity of verifying the treatment. He has yet, however, a peculiar gait, having now as formerly, a tendency to separate his legs in walking.

There are some contradictory symptoms which it will be well to notice. He was not aware of anything unusual until he was confined to his bed. He had never noticed anything wrong about his walk. Previous to the attack there were no pains in his body. When I saw him he had no ocular troubles, though his reflex excitability was absent and the electro-muscular contractility was very much lessened. The patient believed at first that he had a rheumatic attack, although he never had rheumatism. The attack of neuritis I class under the alcoholic kind. There are points, however, which might give some color to its classification in the so-called chronic variety of the sensible form of Leyden. The suggestion of Leyden is well worthy of consideration, viz., "For many cases it is hardly possible to dismiss the thought that for years the process has existed only in the periphery of the nerves." And though the transition of an acute sensory neuritis to an involvement of the spinal cord has not been proven, still "the possibility of this must be borne in mind."

I append a tabulation of the number of times the patient was hypnotized and the improvement.—During this time no medicines were administered:

January 18, 1890.—Patient hypnotized first.

January 19.—Hypnotized. Improvement in sensation of upper extremities; pain much lessened in both extremities.

January 20 and 21.—Not hypnotized, and patient not so well.

January 22.—Patient hypnotized; no pain; his dynamometric power twenty-five pounds.

January 23, 24, 25, 26.—Hypnotized. Continued improvement in his motor and sensory symptoms; walked.

January 28, 29, 31.—Hypnotized. Patient better and able to write.

February 2 and 6.—Hypnotized; improving.

February 11, 12, 13, 14, 15.—Hypnotized, and very much better, and on the 11th, the dynamometric force increased to seventy-five pounds.

The Mental Symptoms of Phthisis.*

AS ILLUSTRATED BY KEATS AND EMILY BRONTË.

By Jas. G. Kiernan, M. D., Chicago, Ills.

ONE mental symptom of phthisis, the *spes phthisica*, is known and recognized by all but the most philistinish physicians. With this phthisis hopefulness is associated a more constant, but less recognized, mental phenomenon than it or the emotional mobility which underlies it.

Concerning these mental phenomena, Clouston says that he has observed in patients mental symptoms by which he was enabled to predict they would die of phthisis. If these cases had been acute at first, the acute stage was of very short duration and passed rapidly into an irritable, excitable, sullen and suspicious state. There is a want of fixity of purpose in their mental condition. The intellect at first is not so much obscured, as there is a great disinclination to exert it. There are occasional unaccountable little attacks of excitement, lasting only for a short time; unprovoked paroxysms of irritability and passion in a subdued form. There is a disinclination to enter into any kind of amusement or continuous work. If this be overcome, there is no interest manifest in employment. If there be any one single tendency characteristic of these cases it is to be suspicious. In many cases this insanity commences insidiously and shows itself by an alteration of conduct and affections, an increased irritability and waywardness. There are fitful flashes of intellectual brightness.

Schroeder von der Kolk has observed an alternation between insanity and phthisis; the mental symptoms being most marked when the phthisical are latent. Cough,

* Read before the Chicago Medical Society, in Outline, March, 1890.

expectoration and dyspnœa are replaced by emotional exaltation.

Harriet C. B. Alexander* says that the fact should not be forgotten that among the earliest symptoms of phthisis is a mental symptom which manifests itself long before the pulmonary symptoms are physically demonstrable. The most prominent and decided symptom which appears in what may be called the pre-tubercular stage of the disease is suspicion. Phthisis often alternates with insanity. A far-advanced phthisis seemingly likely to lead to a sudden death, comes unexpectedly to a standstill; cough, hectic fever, etc., cease, but demonstrable increase of mental disturbance results, and the patient, who could hardly speak for gasping for breath, breathes freely, yells and shouts. Disappearance of the mental symptoms is followed by reappearance of the pulmonary.

Spitzka says that pulmonary affections, particularly phthisis, are sometimes marked by mental disorder, usually in the way of alternating depression, emotional mobility, petulance, an intensification of the egotism common to invalids, and accusatory delirium. Occasionally, unsystematized delusions of grandeur are found at the height of this disorder.

Insanity modifies, very frequently, existing phthisis; cough, rise of temperature, and other marked symptoms, being as frequently absent as present in the insane.

The life of the poet Keats contains so much illustrating the mental effects of phthisis that Rossetti, his latest biographer, is continually puzzled by them. The father of Keats was a stableman of bookish tastes. He seems to have been a natural-born gentleman, for even his marriage with his master's daughter (Keats' mother) left him unassuming and manly. Keats' mother was pleasure-seeking yet saturnine. She displayed the same emotional mobility and suspicional tendencies which characterized her gifted son. She died of phthisis, complicated by

* *Medical Standard*, Vol VII.

rheumatism, when Keats was fifteen years old. Keats, who was her first child, was born seven months after marriage. Haydon, the artist, states that Keats was, when a child, most violent and ungovernable. When five years old, he once got hold of a naked sword, and shutting the door, swore that no one should go out. When his mother attempted to leave the room he threatened her so furiously that she began to cry and was obliged to wait till a man who saw her through a window came to her assistance. Keats, during his childhood, was irascible, suspicious, querulent and pugnacious. These mental states alternated with fits of emotional mobility and suspicional tenderness. During his mother's last illness he nursed her with great care and tenderness.

To physicians the fact is of peculiar interest that Keats was apprenticed, at the age of fifteen, to a surgeon named Hammond. Five years later he passed his examination, at Apothecaries' Hall, with great credit. In 1816, he became an interne at Guy's Hospital; in 1817, he contracted syphilis at Oxford, which was successfully treated by mercury. During the same year he was introduced to Coleridge, who prophesied his early death. In 1818, the first demonstrable symptoms of phthisis became manifest. He had to leave Scotland and abandon his pedestrian tours, partly for this reason, partly because of the approaching death of his brother Tom, from phthisis. Tom, like Keats himself, had been irritable, querulent and suspicious as a youth. George, the other brother, who was pacific albeit resolved, long survived Keats. The sister, who resembled George, died at an advanced age during the present year.

In September, 1818, Gifford's famous critique appeared in the *Quarterly*. Gifford was a fanatical philistinish devotee of the mechanical school of poetry founded by Pope. That "Endymion," the criticised poem, deserved a severely critical analysis is evident from Shelley's remark: "I have read Keats' poem. Much praise is due me for having read it, the author's intention appearing

to be that no person should possibly get to the end of it." Gifford's savage onslaught was, therefore, somewhat merited, but it had altogether too much of the slapdash abusive style. The *Quarterly* critique had been preceded by a scurrilous attack on Keats in *Blackwood's*, which was written by Lockhart, the son-in-law of Sir Walter Scott, and revised by the latter. It was characterized by elephantinely jocose satire (?) The fact that Keats was "Johnny Keats, an apothecary's assistant," was the high and mighty reason assigned for shutting him out of Parnassus.

Shelley states, from hearsay however, that Keats was driven by the *Quarterly* critique into a state bordering on insanity, which produced the first hæmoptysis. The first hæmoptysis, however, did not occur for more than a year after.

Haydon says: "The effect on Keats was melancholy. He became morbid and silent; would call, and sit whilst I was painting for hours, without speaking a word." Keats, however, had had just such attacks of moody suspicional taciturnity before.

In the preface to "Endymion," flayed so mercilessly by Gifford, Keats anticipates "a hell of criticism;" this being the case, the mental effect could not have been so great. Moreover, the circumstances attendant on the first hæmoptysis were opposed to Shelley's opinion. Soon after the attack Keats is said to have been excessively addicted to claret and cayenne and to laudanum. All were, however, so soon abandoned that they would appear to have been parts of some medicinal treatment tried by Keats.

The various brief attacks of irascibility described by his biographer from time to time, taken in conjunction with the physical symptoms, must convince any impartial mind of the justness of Dr. Richardson's view that Keats' death was due to phthisis attacking a frame predisposed to its ravages by inheritance. Keats' younger brother,

Tom, who bore such a decided mental and physical resemblance to him, died early of phthisis, January, 1820.

Keats became noted for his moody taciturnity, alternating with a suspicion, which at times amounted almost to panophobia, etc.; he became misanthropic, and the companionship of friends was tedious; he bewails from time to time his increasing lack of fixity of purpose, one of his earliest observed defects. The first hæmoptysis had been preceded by pulmonary symptoms, dating from the visit to Scotland. It occurred a little over a year after the *Quarterly* critique, which, to judge from Keats' letters, does not seem to have left a very decided moral impression on him, since he did not exhibit more than the querulency and irritability common to one of his moods. A year later, however, near midnight one evening, Keats, according to Lord Houghton, returned home in a state of "strange physical excitement, which, to those who did not know him, might have appeared to be one of fierce intoxication." He had been chilled through on a stage coach, and soon after his return home spat up blood for the first time. His second attack occurred the next June, and thereafter Keats was so irritable, querulent and suspicious that the accidental opening of a letter by one of Leigh Hunt's children, caused such an impassioned outburst that he left Leigh Hunt's house despite all apologies and remonstrances.

The "fierce" condition of "physical excitement," which Lord Houghton likens to intoxication, and which seems to have been reported to Shelley as allied to insanity, was clearly an attack of emotional exaltation, accompanied with irritability, such as has already been described by Clouston as among the mental symptoms of phthisis. Rossetti is puzzled by the appearance of this "physical excitement resembling intoxication" at the time of the hæmoptysis, but such a mental symptom is a far from infrequent precedent to hæmoptysis, which it no doubt often provokes.

A singularly pat illustration of the emotional exalta-

tion attendant on the first hæmoptysis is to be found in the frivolous jaunty satire on George IV., written by Keats at this time, whose jocose tone under the circumstances puzzles Rossetti.

The following August *spes phthisica* made its appearance. Keats, who had pronounced his own death warrant on the appearance of the first hæmoptysis, began to doubt his own diagnosis and believe his recovery certain.

His love-letters,written precedent to the critique and for some time thereafter, are, to quote Rossetti, unbalanced, wayward and profuse; full of suspicion from the outset, which is at first directed towards his friends, and finally to his adored herself. Keats was well aware of this peculiarity of his, for he says,* "You have all your life believed everybody, I have always suspected everybody."

September, 1820, Haydon found Keats, then on his way to Italy, helpless, despondent, irritable and suicidal. December, 1820, he was delirious part of the time and had excessive longing for food. His mental condition varied. He was subject to unsystematized grandiose delusions, accompanied by suspicional irritability and followed by quiet stupor. He died February 23, 1821.

The prevalence of fashion in medical thought is illustrated by the fact that the Irish seventeenth century theory of the contagiousness of phthisis still prevailed at that time at Rome, and the room in which Keats died was treated as if an infected person had died therein.

Taking into account all the circumstances of Keats' career: His lack of fixity of purpose, which even Shelley found evident in "Endymion;" his suspicional tendencies, described by himself and others; the emotional mobility noted by Lord Houghton and others, and clearly evident in the jocose satire on George IV.; his irascibility and pugnacity as well as his heredity, the influence of phthisis on Keats' mental state is clearly manifest.

Had he confined himself to the regular routine life of the medical practitioner his life might have been preserved,

* Letter to Mr. Baily, June, 1818.

since the emotional alternations of the life of the man of letters were certainly productive of vasomotor changes, stimulating the mental and other symptoms of phthisis, and thus producing exhaustion.

The influence of phthisis on the mental state of Emily Brontë is equally demonstrable, her latest and keenest biographer, Miss Robinson, says:* "Insanity and genius stand on either side consumption, its worse and better angels. Let none call it impious or absurd to rank the greatest gift to mankind as the occasional result of an inherited tendency to tubercular disease. There are, of course, very many other determining causes. Yet it is certain that inherited scrofula or phthisis may come out not only in these diseases but in alteration for better or worse of the condition of the mind. Out of evil may come a good, or a worse evil."

Miss Kate Sandford† says "the father, Rev. P. Brontë, could not be called a pleasant easy-going husband and father. He rivaled Carlyle in being 'illgey to live with.' How I pity his delicate wife, who sat lonely and neglected as he was studying, or when he did come, bore with patience his stern, peremptory manner. He was a passionate brute, cutting up her favorite silk dress into shreds because he, her lord and master, chose that she should not accept a gift. He threw the children's pretty little shoes in the fire because, forsooth, he did not fancy the color. Occasionally, he would vent his beast-like rage by firing pistol shots out of doors. A union of this semi-insane temperament and the consumptive constitution of his wife certainly produced genius tinged with sadness."

The history of the two Brontë sisters certainly affords abundant evidence of the mental symptoms associated with phthisis observable in Keats.

One lesson stands out prominent from these facts —the mental symptoms of phthisis are caused by, and cause physical unrest. The interaction of these two fac-

* "Life of Emily Brontë."
† "Vanity of Genius."

tors tends to accelerate the progress of the disease and, by increasing the physical exhaustion of which they are the expression, to decrease the chances of recovery. The mental condition of phthisis therefore needs as much attention as the physical, to calm the restlessness of the phthisical, is therefore to add one factor toward recovery. Antipyrin, in small doses, has been found by Clevenger* to be of value in this direction. I have found acetanilid contraindicated, but have noted that phenacetin exerts a beneficial influence. Loomis† is of opinion that these drugs owe their influence in fever less to their antipyretic power than to their influence on the excitability of the nervous system. This excitability is present in all mental conditions attended by suspicion.

The moral treatment of phthisis is no less likely to be of value than medicinal treatment. The fact should also be remembered that the precocity of the children of phthisical and scrofulous parents requires restraint and control and not stimulation, for it is a symptom of disease, likely to result in mental and physical break-down ere the critical period of puberty be past.

---

* Alienist and Neurologist, 1887.

† *Medical Standard*, Vol VII.

A Case of Paranoia, Illustrating the Feature of Imperative Conceptions.

By Theodore Diller, M. D., St. Louis,

Formerly Resident Physician in the Philadelphia Hospital; Late Assistant Physician in the State Hospital for the Insane, Danville, Pa.

PARANOIA is seen in such great variety since the meaning of the word has been so greatly enlarged by alienists, that each case is a study of itself. Of course, this, in a measure, is true of all disease, both mental and physical, but it is more especially true of the various forms of insanity, and particularly of paranoia. It is because of the large number and varied character of perverted or unbalanced psychological phenomena which this psychosis presents, that we need to study a large number of cases in order to possess a comprehensive idea of this form of mental disease, with its manifold and ofttimes perplexing manifestations. Profitable studies of this, as of any other disease, mental or physical, can only be made from the study of a collection of cases, the larger the better, and I do not know of any disease to which this statement applies with greater force than it does to paranoia. I, therefore, make no apology for noting this clinical record of a single case. The interesting and instructive features of the disease will be discussed later.

It is because of the great number and variety of features which this psychosis presents that we find it difficult or even impossible to formulate a definition which is sufficiently comprehensive and yet definite. For this reason, the existence of paranoia as an entity, has in, some quarters, been looked upon with ill-favor or distrust.

A. E., single woman, aged 37, admitted to State Hospital for the Insane, Danville, Pennsylvania, February 21, 1887. Little is known of the early life of patient except

that she was regarded as a "bright child," apt at her studies which she pursued with diligence. She attended one of the best schools in the country for the higher education of women. Here she acquitted herself with honors. The daughter of wealthy parents, she was much indulged. Cultivated, educated and refined, she associated with her peers.

Her commitment papers record the following relative to her: Supposed cause of insanity: religious excitement. Symptoms consist of erratic ideas concerning various questions—following out these, of relatives and friends. Becomes more erratic with age. Bright and well educated. Has been more or less insane, in a mild way, for the last ten years. An uncle died in the Bloomingdale Asylum.

February 26, 1887.—Patient is in good health; shows a rather nervous temperament; has a quick, nervous, excitable pulse. Comprehension and memory active and ready. Her gait indicates considerable self-importance and independence. Has no special delusions. Believes in various isms and Utopian ideas—in one especially, concerning a a man of family, holding similar "cranky notions;" says that, at times, during her life she has been insane, but is not so now. At one time she believed that whiskey would cure her and would "drink a quart in twelve hours;" it would not trouble her. While living in the city, would start off blindly on a car with no idea of where she was going; has gone to another city without apparent reason and without money to return; woke up and found herself in strange situations and surroundings. On such occasions says she was insane.

March 23.—Makes no special trouble beyond her argument with other patients, thereby exciting them. No new features beyond her original ideas, which differ but slightly from delusions.

May 26.—"Hysterical" paroxysm, resembling a convulsion, noted to-day. She attributes it to temper only, maintains that every insane person is so on account of his or her lost soul, but prior to death, instead of after; "If not lost why should they be insane?"

August 17.—"Hysteria" more frequently seen. Other original ideas spoken of, and, at times, she has been sending "signals" by deaf and dumb alphabet (as she explained subsequently) from the window to her "friend," with whom she has spiritual associations, etc.

November 11.—Has been unusually excited for the past few days. Injured her hand while breaking a window, "Couldn't control herself—was temporarily insane."

January 20, 1888.—Is occasionally depressed on account of erratic ideas concerning her "friend."

June 19.—Seldom heard to speak of her "friend," but shows mental deflections in various ways.

March 13, 1889.—Physical health more impaired through irregular eating—usually missing one or two meals daily—due to the delusions. Makes frequent request for various medicines and articles of food, but soon rejects them. Delusions of erratic nature well-marked; occasional periods of invectives against the authorities of the institution for not properly caring for her—also for her detention here. Writes long articles when paper is obtainable. Writings are connected, but utterly unreasonable and delusional. Does not talk of "friend" so frequently. Periods of excitement, in which she broke window occurred two days ago. Soon lapsed into unusual quiet, but again repeated the same act.

April 10.—Has threatened to do herself bodily harm. Threw herself upon the floor several times, to show that she meant to do as she threatened.

April 16.—Tore all nails off of fingers and thumb of right hand. Restrained with muff. Next day, while this restraint was upon her, threw herself on floor so that nose struck first. The organ, in consequence, is swollen and painful—cartilages loosened, but no fracture noted; for this last manifestation she has been restrained in bed at night; says it is wrong to do these things, but feels impelled to do them by a strong internal feeling, which she says in irresistible. Feels that she must do something desperate. Restraint removed, watched constantly night and day by special attendant.

May 4.—Paroxysm abated; physically reduced.

July 4.—Excited; suicidal attempts.

July 24.—Removed to Hillside Farm by the poor authorities to-day.

The patient doubtless had delusions of various kinds; also hallucinations of sight and hearing. At times she has admitted that her actions and declarations were insane. Probably for a considerable time before her friends admitted she was insane she had struggled against the various delusions and hallucinations which she, in a greater or less

measure, recognized herself. When she finally did permit her actions to be governed by them she still realized that her friends would not believe in her ideas, *e. g.*, she never told her family why she made trips to strange cities, etc., etc.

The first note made after her admission states that "her gait indicates considerable self-independence." The *hauteur* and air of conscious superiority which the patient exhibited in her gait, actions and conversation was very manifest. It, in a great measure, arose, I think, from a belief which she possessed almost constantly that she was *persecuted.* It is the air which one might imagine that a person of noble nature would assume when persecuted by those whom he regarded as vastly inferior to himself. Often her actions were erratic, exhibiting a sinister purpose which could not be guessed and which the patient herself refused to explain.

It will be noticed that the most persistent delusion which she possessed was in reference to her "friend," with whom she held spiritual communication. Exactly what her ideas were on this subject is not known, as she refused to tell more than is here stated.

November 11, 1888, she broke a window because she "couldn't control herself." Afterwards told the writer that it was, of course, very wrong to damage the building and run the risk of injuring herself, but said, in her usual polite and dignified manner: "I assure you, sir, that I felt such a strong inward prompting that it was impossible to resist it." This I believe to have been an imperative impulse, as close questioning failed to reveal that it was the prompting of any delusion. Her subsequent actions seem to me to confirm this view. The tearing off of her finger-nails was probably the result of another imperative conception, as she explained it in the same way. The various attempts which she made to throw herself, head first, upon the floor, I look upon as the best example of imperative conception, however. Several times she cried

about it saying that she did not know why she could not resist those fearful promptings.

Up to the time of her discharge, when she had been insane more than twelve years, she showed evidence of possessing excellent memory. Her reasoning power was also very good when her delusions were not touched upon. Her manner normally was agreeable, and she was a pleasant conversationalist; could discuss history, English literature, etc., intelligently and entertainingly.

AN INFANT PRODIGY.

By S. V. Clevenger, M. D., Chicago.

TWO little colored children were reciting the multiplication table at their home, in a little cabin in Texas, as they had repeatedly done before, and one of them asserted that four times twelve was fifty-eight, whereupon a thirteen-months old baby, Oscar Moore, who had never spoken before, corrected the error by exclaiming, "Four times twelve are forty-eight!" with the emphasis on the forty-eight. There was consternation in that humble home until the family became reconciled to the "freak."

I publicly exhibited him to the physicians of Chicago, at the Central Music Hall, in 1888.

Oscar was born blind, and, as frequently occurs in such cases, the touch sense compensatingly developed extraordinarily. It was observed that after touching a person once or twice with his stubby baby fingers, he could, thereafter, unfailingly recognize and call by name the one whose hand he again felt. The optic sense is the only one defective, for tests reveal that his hearing, taste and smell are acute, and the tactile development surpasses in refinement.

But his memory is the most remarkable peculiarity, for when his sister conned her lessons at home, baby Oscar, less than two years old, would recite all he heard her read.

Unlike some idiot *savants*, in which category he is *not* to be included, who repeat parrot-like, what they have once heard, baby Oscar seems to digest what he hears, and requires at least more than one repetition of what he is trying to remember, after which he possesses the information imparted and is able to yield it at once when questioned.

It is not necessary for him to commence at the beginning, as the possessors of some notable memories were compelled to do, but he skips about to any required part of his repertoire.

He sings a number of songs and counts in different languages, but it is not supposable that he understands every word he utters. If, however, his understanding develops as it promises to do, he will become a decided polyglot.

He has mastered an appalling array of statistics, such as the areas in square miles of hundreds of countries, the population of the world's principal cities, the birthdays of all the presidents, the names of all the cities of the United States of over 10,000 inhabitants and a lot of mathematical data.

He is greatly attracted by music, and this leads to the expectation that he may rival Blind Tom when more mature.

In disposition he is very amiable but rather grave beyond his years. He shows great affection for his father, and is as playful and as happy as the ordinary child. He sleeps soundly, has a good childish appetite and appears to be in perfect health. His motions are quick but not nervous, and are as well co-ordinated as in a child of ten. In fact, he impresses one as having the intelligence of a much older child than three years (now five years), but his height, dentition and general appearance indicate the truthfulness of the age assigned.

An evidence of his symmetrical mental development appears in his extreme inquisitiveness. He wants to understand the meaning of what he is taught, and some kind of an explanation must be given him for what he learns. Were his memory alone abnormally great and other faculties defective this would hardly be the case, but if so, it cannot at present be determined.

His complexion is yellow, with African features, flat nose, thick lips, but not prognathous, superciliary ridges

undeveloped, causing the forehead to protrude a little. His head measures nineteen inches in circumference, on a line with the upper ear tips, the forehead being much narrower than the occipito-parietal portion, which is noticeably very wide. The occiput protrudes backwards, causing a forward sweep of the back of the neck.

From the nose root to the nucha over the head he measures thirteen and one-half inches, and between upper ear tips across and over the head, eleven inches, which is so close to the eight and ten-inch standard that he may be called mesocephalic.

The bulging in the vicinity of the parietal bosses accords remarkably with speculations upon the location of the auditory memory in that region, such as those in the *American Naturalist*, July, 1888, and the fact that injury of that part of the brain may cause loss of memory of the meaning of words. It may be that the premature death of the mother's children has some significance in connection with Oscar's phenomenal development. There is certainly a hypernutrition of the parietal brain with atrophy of the optic tract, both of which conditions could arise from abnormal vascular causes or the extra growth of the auditory memory region may have deprived of nutrition, by pressure, the adjacent optic centers in the occipital brain.

The otherwise normal motion of the eyes indicate the nystagmus to be functional.

Dr. Henry Gradle, the oculist, examined Oscar's eyes, and kindly furnishes the following report:

"When addressed, there is conjugate deviation of the eyeballs to the right, and somewhat downward, but motion is possible in every direction with perfect parallelism of the two eyes. There is no strabismus. Nystagmus occurs with the eye-movements, especially when towards the left.

"There is no evidence of sight. He appears to be absolutely blind. The pupils are of medium width and immobile, rather less than the width of total blindness,

nor do they dilate freely with homatropine. The ophthalmic discs are small, and have undergone pure white atrophy, not cupped. Veins and arteries of fundus are normal in size (a remarkable condition in association with atrophy). There are whitish streaks of degeneration in the retinal centers, but no pigmentary or other anomalies. It seems likely that the blindness is due to prenatal hemorrhage near the optic chiasm."

Oscar Moore, the infant prodigy, was born August 19th, 1885, in Waco, Texas. His father, Henry Moore, was born in Lawrence county, East Tennessee, in the year 1836. Henry's mother, Ellen Moore, lives in that region, where she also was born about the year 1818. Ellen's mother was a full-blooded African, but her father was a white man, named McBroom. She was therefore a mulatto. Her hair was straight and black.

Ellen's husband, the father of Henry, was quarter white. Henry and his mother were slaves, owned by a planter, named Merriman, who sold Henry at the age of twelve years to a negro trader, who resold him to a Dr. Harrison, near Aberdeen, Monroe county, Mississippi, with whom he lived until emancipated at the close of the war. Henry then went to McLennan county, Texas, in 1872, and married a widow named Fanny Thompson, who had two children by her former husband. One of these boys died hydrocephalic in infancy; the living one, born in 1870, is a sprightly young man, fairly educated, who teaches a primary school, and enjoys quite a local reputation as a singer.

Henry and Fanny Moore have had eight children, five boys and three girls, all of whom died probably of tuberculosis excepting two girls and Oscar, who was the seventh child.

Fanny, the mother, is a mulatto, with three brothers and two sisters living in Waco, Texas. She reads a little, but did not learn to write, while her brothers and sisters are but little better instructed. Henry writes and reads a little, and has good common sense. Fanny's other two children by Henry are not remarkable in any particular.

Sudden exaltation of the memory is often the consequence of grave brain disease, and in children this symptom is most frequent. Pritchard, Rush, and other writers upon mental disorders, record interesting instances of remarkable memory-increase before death, mainly in adults, and during fever and insanity. In simple mania the memory is often very acute. Romberg tells of a young girl who lost her sight after an attack of small-pox, but acquired an extraordinary memory.

He calls attention to the fact that the scrofulous and rachitic diatheses in childhood are sometimes accompanied by this disorder.

Winslow notes that in the incipient state of the brain disease of early life connected with fevers, disturbed conditions of the cerebral circulation and vessels, and in affections of advanced life there is often witnessed a remarkable exaltation of the memory which may herald death by apoplexy.

Not only has the institution of intelligence in idiots dated from falls upon the head but extra mentality has been conferred by such an event. Pritchard tells of three idiot brothers, one of whom after a severe head injury, brightened up and became a barrister, while his brothers remained idiotic. "Father Mabillon," says Winslow, "is said to have been an idiot until twenty-six years of age, when he fractured his skull against a stone stair-case. He was trepanned. After recovering, his intellect fully developed itself in a mind endowed with a lively imagination, an amazing memory, and a zeal for study rarely equaled."

Such instances can be accounted for by the brain having previously been poorly nourished by a defective blood supply, which defect was remedied by the increased circulation afforded by the head injury.

It is a commonly known fact that activity of the brain is attended with a greater head circulation than when the mind is dull, within certain limits. Anomalous development of the brain through blood-vessels, affording

an extra nutritive supply to the mental apparatus, can readily be conceived as occurring before birth, just as aberrant nutrition elsewhere produces giants from parents of ordinary size.

There is but one sense defect in the child Oscar, his eye-sight absence, and that is atoned for by his hearing and touch acuteness, as it generally is in the blind.

Spitzka and others demonstrate that in such cases other parts of the brain enlarge to compensate for the atrophic portion which is connected with the functionless nerves. This, considered with his apparently perfect mental and physical health, leaves no reason to suppose that Oscar's extravagant memory depends upon disease any more than we can suspect all giants of being sickly, though the anomaly is doubtless due to pathological conditions.

Of course there is no predicting what may develop later in his life, but in any event science will be benefited.

It is a popular idea that great vigor of memory is often associated with low grade intelligence, and cases such as Blind Tom, and other "idiot *savants*" who could repeat the contents of a newspaper after a single reading justify the supposition. Fearon, on "Mental Vigor," tells of a man who could remember the day that every person had been buried in the parish for thirty-five years, and could repeat with unvarying accuracy the name and age of the deceased and the mourners at the funeral. But he was a complete fool. Out of the line of burials he had not one idea, could not give an intelligible reply to a single question, nor be trusted even to feed himself.

While memory development is thus apparent in some otherwise defective intellects it has probably as often or oftener been observed to occur in connection with full or great intelligence.

Edmund Burke, Clarendon, John Locke, Archbishop Tillotson and Dr. Johnson were all distinguished for

having great strength of memory. Sir W. Hamilton observed that Grotius, Pascal, Leibnitz and Euler were not less celebrated for their intelligence than for their memory. Ben Jonson could repeat all that he had written and whole books he had read.

Themistocles could call by name the 20,000 citizens of Athens. Cyrus is said to have known the name of every soldier in his army. Hortensius, a great Roman orator, and Seneca had also great memories.

Niebuhr, the Danish historian, was remarkable for his acuteness of memory. Sir James Mackintosh, Dugald Stewart and Dr. Gregory had similar reputations.

Nor does great mental endowment entail physical enfeeblement; for, with temperance, literary men have reached extreme old age, as in the cases of Klopstock, Goethe, Chaucer, and the average age attained by all the signers of the American Declaration of Independence was 64 years, many of them being highly gifted men, intellectually.

Thus in the case of the phenomenal Oscar it cannot be predicted that he will not develop as he now promises to do, equal and extraordinary powers of mind, even though it would be rare in one of his racial descent; and in the face of the fact that precocity gives no assurance of adult brightness, for it can be urged that John Stuart Mill read Greek when four years of age.

The child is strumous, however, and may die young. His exhibitors, who are coining him into money, should seek the best medical care for him, and avoid surcharging his memory with rubbish. Proper cultivation of his special senses, especially the tactile, by competent teachers, will give Oscar the best chance of developing intellectually and acquiring an education in the proper sense of the word.

A Contribution to the Study of Landry's Paralysis.*

By George J. Preston, M. D.,

Professor of Physiology and Clinical Professor of Nervous Diseases, College of Physicians and Surgeons, Baltimore.

THE following case presented so many of the symptoms of Landry's paralysis that it would seem best to refer to it under that title. The history has been condensed from the very full and accurate notes taken for me at the time by Dr. Frank Sanger:

John Dawson, aged 37, laborer. Has good family history, and has never been seriously sick in his life. Has been working for some months past at Stulton, and has been much exposed to cold and wet. Has been in the habit of drinking beer.

January 10th, partook largely of beer and slept in a brick yard all night. Next morning went back to work. Had some pains in legs, and also a coryza, possibly had an attack of *grippe*. Went to bed same afternoon, and when he awoke next morning found he could not stand on his feet. Lost power in legs entirely, then in arms. Continued in this condition for about ten days, when he was brought to Bay View Asylum. Condition at that time as follows:

Temperature normal, pulse normal, respiration 43. Could only speak in a whisper and with great difficulty; was unable to swallow; could not nurse himself or turn in bed. On the second day after admission to the hospital temperature was normal, pulse normal, respiration 52. This rapid respiration continued for three or four days, with normal temperature and pulse. Very careful examinations of his chest failed to detect any evidence of disease. The patient presented a most pitiable appearance. He could

* Read before the Clinical Society of Maryland, June 7th, 1890.

make his wants known only with the greatest difficulty; could not swallow, and was utterly unable to move. Patient was not emaciated. On fourth day after admission respiration fell to normal, and patient became able to swallow. The most careful and frequently repeated examinations failed to elicit symptoms of disease of any organ. The temperature was elevated to 100° F. only two or three times, and then only for a short while. Patient was not able to sit up in bed until the end of the second week. Mental condition was good except for the first few days, when he seemed somewhat confused, but that may have been due to his great difficulty in articulation. The paralysis was almost complete. If the arm or leg were raised while the patient was lying on his back, they fell as dead weight. Was utterly unable to stand at end of second week; muscles were well nourished, not flabby; knee-jerk greatly exaggerated and ankle clonus well marked. Careful electrical testing gave absolutely normal reaction. Sensation was almost lost over whole body. He was hardly able to feel a pin stick that would draw blood, although I think he could feel the grasp of the hands on his limbs. If the pin were stuck vigorously into the limb he would feel it slightly. There were also some patches of hyperæsthesia, irregular in distribution, mainly in the lower cervical and upper dorsal regions posteriorly. Muscular sense was greatly impaired. There was marked nystagmus, and the field of vision in both eyes was much restricted, and symmetrically so. Neither bladder nor rectum were at all affected.

By the middle of February, or about a month after the onset of the disease, patient began to walk a little. Would constantly fall. By degrees his strength came back—I think in his arms rather earlier than his legs. By the latter part of March he was able to walk fairly well, though with his legs wide apart. Knee-jerk at this time normal, and no ankle clonus present. Sensation nearly normal. Throughout the course of the disease patient complained of some pains in legs and arms.

Patient was hypnotized, and the suggestion strongly made that he could walk. On attempting it he failed as signally as when in his normal state. Other suggestions, such as introducing him to imaginary persons, telling him that his nose was bleeding and so on, succeeded perfectly. Patient being able to walk pretty well went out on a permit and did not return.

The prominent symptoms might be summed up as follows: 1, Sudden onset of the paralysis, and its progressive tendency, beginning with the lower extremities and involving nearly the whole body. 2, Perfectly normal electric reactions. 3, Greatly exaggerated deep reflexes. 4, Great diminution of general sensibility. 5, Much impaired muscular sense. 6, Probable involvement of medulla. 7, Absence of muscular atrophy. 8, Recovery, which was probably perfect, as the man left the hospital and presumably returned to his work.

Since the time (1859) that Landry first described the disease to which his name has been given, a rather questionable honor, since Landry himself designated the affection as *acute ascending paralysis*, a great many cases have been reported as probable examples of the disease in question. If it be a distinct affection, as is generally conceded, our knowledge of its nature has hardly advanced a step since the first reported case. As to its etiology, the general causes which are supposed to be active in the causation of certain other cord affections are assigned a like position in reference to Landry's paralysis. Most prominent among these are exposure to cold and wet, overwork, syphilis and the like. We may frankly say that nothing is known as to the etiology of the affection. More remarkable still, *post-mortem* examinations, of which a number have been most carefully made, have revealed no important or constant lesion. Landry declared after two autopsies that there was no lesion whatever of the cord. The same negative results were arrived at from autopsies made by Levi, Westphal, Hazen, Petifils and others. Westphal held that the disease was an acute infection of the cord, but could not

indicate the manner in which the cord was affected. This view was strengthened by the fact that the spleen has been found enlarged in a number of cases, and Baumgarten claims to have found in the cord of a patient dying from the disease bacilli resembling those of splenic fever. Some slight traces of degeneration in the gray matter and also in the lateral columns have been seen by Schulz, Immerman and others. Grasset regards the disease as a form of acute diffuse myelitis, which destroys life not by the intensity of the local inflammation, but by its wide extent; and notices the fact, that in most of the fatal cases death has resulted in such a short time that no very marked changes in the cord could take place. This latter theory would better explain the very irregular and apparently contradictory symptomatology than any other yet put forward; and it is not improbable that it may be produced by a special micro-organism. It has been suggested that the disease is a form of *multiple neuritis*. The essential features of the symptomatology are, the sudden onset, with or without prodromata, beginning with paralysis of the legs and extending rapidly, in hours or days, or even sometimes a week, to other parts of the body, frequently involving the muscles of respiration and the medulla. That the disease may pursue an inverse order we see from reported cases. Cuvier is said to have died from this latter form of the disease. Reflexes are sometimes lost, sometimes normal, and again, exaggerated. Electro-contractility for both muscle and nerve remain normal. Sensibility is usually somewhat impaired. Bladder and rectum not involved. There is sometimes a slight rise of temperature. The mind is nearly always clear. Disturbances of respiration, articulation and deglutition are common. No muscular atrophy follows as a rule.

It is amusing to look over the literature on the subject and see how the symptoms vary in the different cases reported. This however is just what we should expect if the theory of a diffuse myelitis is adopted.

A grave prognosis should always be given, though undoubtedly a good many typical cases recover. Death

may take place in a few days or not for several weeks. Recovery, when it occurs, comes on rapidly and in a few weeks most of its symptoms have disappeared, though weakness may last for some time.

In the case I have reported I would call attention to the marked ankle clonus, nystagmus and symmetrical limitation of the field of vision, and the loss of muscular sense symptoms which I have not seen described elsewhere.

The treatment that would be probably the best, judging from the general symptomatology, would be perfect rest, counter-irritation to the spine, either by dry cups, actual cautery or blisters, iodide and bromide of potash in large doses, and attention to respiration and circulation if these functions should show signs of failing.

HYPNOTISM.

By Robert Funkhouser, A. M., M. D., LL. B.,

Consulting Surgeon to City and Female Hospitals, St. Louis, Mo.

TO deny the phenomena of hypnotism is but an admission of gross ignorance, not scepticism. Braid observed long ago, "unlimited doubt like unconditioned credulity is the child of mental weakness." As in every department of science, the beginning must be small, crude, and sometimes vague; so hypnotism furnishes no exception to this rule. Of late years, the efforts of a few have given a new impetus to the investigation of the subject. Some have suffered obloquy, derision and ostracism for many years on account of their conviction of the truth of the phenomena.

If we look back over the history, even in a cursory manner, we are struck with the uniformity of results, but with the diversity of explanations of hypnotism. Man is so constituted that he either reverences or ridicules that which he does not understand, and tends to magnify or belittle what appears mysterious. If any subject is to be studied to advantage, whether it be physiological, psychological, physical or biological, all prejudice must be cast aside, all pet theories given up, and the subject approached with an unbiased mind. If man would but recognize that there is nothing supernatural, though it may be superhuman, that nothing advances *per saltum*, but the whole universe is regulated and controlled by established laws, he will have prepared himself for the study of phenomena wherever found. I know that it is easy to moralize, to utter platitudes, but on some occasions, and this is one, they are eminently proper and well-timed. It does not require much thought to sneer and ridicule, and there are not a few members of the noble profession who are not guilty of treating hypnotism in this manner; but

such procedure is not scientific, and the medical profession should be nothing, if not fair, just, equitable and patient. The proper study of hypnotism demands untiring, careful and accurate investigators. There is danger, unless restricted within proper bounds, of hypnotism and the students thereof, falling into the disrepute formerly attached thereto. Even though it be accepted as a science, there is danger of its being abused by unreliable and incompetent practitioners, either in or without the profession. This is not to be wondered at when we consider that the average medical man of the present day has had inadequate preparation for the study of psychological questions. If we ever expect to arrive at permanent conclusions, we must carry on our investigations in a methodical manner, aided by all of the accessory apparatus which science affords.

As well might you expect a specialist in diseases of the throat to practice without a knowledge of the use of the laryngoscope, or an ophthalmologist without the ophthalmascope, as to consider a neurologist to be thoroughly up in his specialty without a practical acquaintance with hypnotism.

As these articles will embrace extracts as it were, I will endeavor to present some of the most interesting questions bearing upon hypnotism. Without entering into its history here, I shall take it for granted that the reader is to some extent acquainted with the literature of the subject.

When the various theories which have been advanced to account for the phenomena of hypnotism have been reviewed whether it be the theory of suggestion, pure and simple, on the one hand, and on the other, the theories which are much more complex and mysterious, such as the *fluidic*, man is apparently no nearer now to a clear solution than he was when Asclepios was put to sleep by the Centaur for the purpose of compelling him to reveal the healing herb.

In attempting to define what hypnotism is, we are

confronted with the same difficulties that are met with in defining electricity. It will be better to say by what it is *characterized* than to say what it *is*. I fully realize the perplexity of offering a definition which will be adequate in every respect. The so-called "hypnosis" is a psychical state which may be superinduced by some influence on the nervous system, not only by one organism on another, but by automatism (and to this may be added) characterized, by states or stages accompanied with various phenomena. In considering the subject, there is no definition free from objection. The word means "sleep," but all subjects hypnotized do not sleep or become unconscious. This is evidenced by the question often asked, "Why do you say I am to go to sleep when I do not sleep, and though my eyes are shut, I know all that is going on but am unable to talk or move?" Thus it appears that it is erroneous to designate hypnosis as "sleep," as much so as to say that all people who have their eyes shut are asleep. All persons thus influenced are not necessarily unconscious or asleep. I have controlled many subjects without first putting them into a sleep-like state. One case that I treated, for the tabetic variety of multiple neurosis, was controlled at the first treatment without making him unconscious or putting him to sleep. It was a case of *fascination*, in which the patient was influenced, his eyes remaining wide open, conscious, without the power of motion, talking, or in any way of being master of his actions.

Some have described hypnotism as a suspension of will-power. This is not accurate, for cases are met with wherein the subject is capable of exercising the will in that plane of consciousness in which he then is. There are cases of abulia, however, where the patient has no will of his own. It is not absolutely necessary that there shall be acquiescence of the subject, for there are instances to the contrary. To the question, Can a person be hypnotized against his will, I reply that it may be done in some cases. I have had such cases, and I recall one in

particular, where the patient, a perfectly healthy, even robust person, in a way of banter, objected and resisted hypnotization unsuccessfully.

It is essentially wrong to say that they who are influenced, are mentally weak, hysterical, or women. Very frequently we find that hypnotism has the effect of sharpening the intellect and brightening the faculties. The further consideration of this will very appropriately come up in connection with the applicability of hypnotism to the education of children, especially in relation to their moral and intellectual training, and particularly in its use in reformatory institutions.

Many of my subjects have been and are healthy and above the average in intelligence. The phenomena of hypnotism do not indicate something in the subject already diseased or on the point of becoming so. It is by no means necessarily a pathological condition. Because it is seen in people not healthy, this condition should not be considered morbid; no more so than to say that because a sick person is hungry, that all hungry persons are sick. Hypnotizability indicates neither health nor disease, but merely a "facility of communication or alternation" between the different planes of consciousness. This facility may be injurious or beneficial, depending upon the peculiarities of each individual case. From the mere fact that a person who is hypnotizable is hysterical, it does not follow that he is hypnotizable on account of his tendency to hysteria, or that because many persons who are hysterical are hypnotizable, that hysteria is a *sine qua non* for the manifestation of hypnotism. The fact is that under certain circumstances an hysterical tendency may be manifested in anyone. The majority of cases in my experience have been quite free from the so-called hysterical or nervous tendencies. The truth is that some of the most unmanageable or difficult cases have been those of hysterical people. But these questions will be considered at another time. The influence varies in degree in each subject; the control of the per-

son depends upon the intimateness of the relationship between him and the operator. As a rule, after the subject has been once hypnotized, he succumbs more readily at each hypnosis thereafter.

One of the most tractable cases I have had was that of a prominent member of the press, upon whom cataleptic and lethargic phenomena were produced, as analgesia, hyperæsthesia, anæsthesia, and other effects connected with the cutaneous and muscular system, as well as subjective sensations and hallucinations evoked, in relation to the senses of taste and smell.

Is hypnotization injurious? In my experience, I have seen no deleterious results, though I can well understand that if practiced by irresponsible agents without regard to therapeutical effects, neuroses may be developed, and no doubt, there is truth in the assertion of some writers that frequent hypnotizations have a tendency to develop neuroses, when judgment is lacking and the patient is an improper subject. It would be the height of criminality for the agent to suggest to a suggestible percipient that he is dying, or is about to die, or is dead, or is drowning, or to make any suggestion interfering with the proper physiological functions, or weakening the moral sense. I know of one instance in the practice of another, where a suggestion was made affecting the normal functions of the body, from which the patient narrowly escaped with his life. The use of hypnotism simply for amusement, is to be deprecated, and the study of it from a scientific standpoint should be carried on by competent operators within the medical profession and under proper safeguards. The necessity of scientific training is made manifest from time to time, by cases reported in the literature of the day, and by others which are not made public.

The methods whereby these phenomena are produced are many. They are of minor importance so long as they serve to impress the subject and convey the desired effect

of producing the so-called "sleep." In some cases, however, it is important to determine what method will be most effective. They are usually divided into two groups, physical or mechanical, and psychical; and even here we must be careful in deciding to which division certain methods should be referred. It requires personal tact and experience. In the course of time each operator will have his own means, and will use psychical or physical accessories, or a combination of them, as he deems proper for the person and occasion. This matter of methods requires elaboration in future pages, for the various modes of action affect subjects differently. Even though we may use an inanimate object upon which to engage the attention of the patient, it will be difficult to decide how great an influence the primary direction of his notice to that object has in inducing the phenomena subsequently. The mere fact of so directing the mind to the said object may set in motion a train of thought, which may produce the desired effect, the object itself merely serving mechanically for concentration, consciously or unconsciously, upon the process which leads to the hypnotic condition. Of this, the physical group, are classified those which affect the nervous system, especially the sensory nerves, by causing a state of fatigue in certain senses, by affecting as it were a certain inhibitory condition of the brain. Under this group I have used such methods as looking at the point of a pencil or a bright surface, a diamond, a mirror, or only the end of a finger at a short distance from the eyes. I have also constructed a machine for rotating colored discs made of glazed cardboard, the patient's gaze being directed to the moving discs. But the usual method has been to have the patient look steadily into my eyes, with or without holding one or both hands. At times a bright light is placed in such a manner as to shine into the patient's eyes.

Often it requires some judgment to determine the effect and the extent of the method employed.

In other words, one may be engaged in hypnotizing a subject and fancy that the patient is not under the influence, when in fact he may be much more so than is supposed. This is evident, especially in those cases of fascination or charm where the patient can be controlled without much effort and without having passed through the usual stages. The other group act principally by suggestion without any mechanical medium, as for instance, telling the patient that he will go to sleep at a certain time, and at that time he goes into the hypnotic sleep, etc., etc. It is not easy to distinguish between the two groups of methods. As a rule the theory of suggestion is correct, though there are cases which we can scarcely determine. Yet it cannot be well denied that passes and strokes have a powerful effect upon the subject, and when I desire to produce a deeper sleep, especially when I wish to have a new personality of the individual manifested, I use them on the subject. Whether or not these passes act simply by suggestion or otherwise the result remains. It is hard to decide at times the effect of passes, for even though we may be convinced by primary experiments upon a subject, the subsequent repetition of the same may excite his suggestibility, as for instance in some cases where I have been able to control the various actions of a subject alone in a separate room; by repeating them frequently at various hypnotizations, the patient when placed under the same circumstances will have a tendency to repeat the phenomena spontaneously.

In one case the subject under hypnosis would not pass at first from the lethargic to the somnambulic state without friction on top of the head, but after repeated hypnotizations passed from one to the other, merely by suggesti
subject had never heard of these methods. W
method of the so-called groups, viz., the physical or psychical, may be used, in all probability they both act in the same manner by suggestion, and in a majority of cases it is sufficient to account for many of the phenomena.

At present, in France, there are two schools of hypnotizers. Members of the so-called Nancy school, who attribute the phenomena to suggestion; and others, some of whom are members of the Salpêtrière school, who believe that some of the phenomena are attributable to something besides mere suggestion, even though used in the very broadest sense of the word. There is no doubt in my mind that suggestion is sufficient to explain very many of the phenomena, but there are some of a higher class which it is inadequate to account for, such as thought and taste transference and clairvoyance, etc., of which phases I have unquestionable evidence.

In relation to procedures for producing hypnosis I will say that they are as numerous as the hypnotizers themselves, and no operator confines himself to any one. I will give here only a few details of my own operations in superinducing the so-called hypnosis. Others may be deduced by the reader from instances to be mentioned hereafter in these articles. When a subject presents himself for treatment of some ill for which it is supposed he can be benefited by hypnotism, I have someone present in the room or in the next room, with the door partly open. It is necessary to take this precaution, for patients have queer vagaries when under the influence. I recall a case whom I treated in the presence of her husband. She accused me of slapping her face. She, no doubt, was honest in thinking so. The sensations of the subjects are various and peculiar, and the physician should always be prepared for emergencies. The operator should be dignified, calm, collected and confident, without indicating any inability, but should impress the subject with the idea of his power to hypnotize and and induce sleep, eschewing all methods of charlatans and mountebanks. Any lack of self-confidence will be detected by the subject and weaken the operator's influence. It is necessary that the operator have the hearty support and co-operation of the subject, who should believe implicitly that he will be benefited by the

procedure. I talk firmly, kindly and clearly, so that there may be no misapprehension on the part of the subject. I tell him that I do not care to attempt to hypnotize unless he is perfectly willing and will not consciously object. I assure him that to be so influenced is not necessarily indicative of a weak mind or will, that he will not remain under the influence for any great length of time, and that his private affairs will not be made known by him or any attempt be made to enquire into them. I direct the patient to sit in an easy chair or recline upon a sofa, then with or without clasping the thumbs or hands, I direct him to gaze fixedly at my eyes without taking them away. Generally in a very short time, often within a few seconds or perhaps within a few minutes, or in some cases in a half-hour or even longer, the subject passes into the hypnotic state. A case has been reported in which one hundred attempts were necessary before the operator was successful. The necessity of cultivating patience and tact cannot be too strongly impressed upon those intending to practice hypnotism. Remember that practice makes perfect. The influence is indicated in various ways, sometimes by batting of the lids, by watering of the eyes, by glassy stare until the eyelids close, when usually I command "Sleep," "Sleep soundly," "Sleep unconsciously," "Do not remember anything that has occurred while asleep." Many times they become unconscious, and are unable to recall what occurs while hypnotized. In other cases, the patient, though unable to move, talk or open the eyelids, remembers on being dehypnotized all that has occurred. And it is a singular fact that if you ask them why they did not talk, move or open their eyes, they will say that they did not care to, though they add sometimes that they thought they were able. There are some, however, who will admit that they were unable. In some cases, when the patient is diffident or afraid, I generally talk to him about the benefits of hypnosis, and have been in the habit, in many

cases, of allowing the patient to observe others put in the hypnotic condition. Considerable judgment is required in permitting some subjects to witness others in this state. Several times instead of allaying their apprehensions, it has intensified them, especially in those instances where the subjct presents a cataleptic appearance. Sometimes gentleness will be more efficacious than bluntness, though frequently firmness and even resolution of manner are indispensable.

Whatever the procedure may be, the operator will sometimes find that he will be put to his wits' end to contrive some mode adequate to produce beneficial effects in the hypnotic state. For instance, when the patient in his usual personality suffers from pain, and where it still persists after various efforts have been made to relieve him, sometimes it may be removed by transferring him to another personality and taking away the pain. If necessary, the pain is changed from one part of the body to another, sometimes to several parts of the body successively before it disappears.

In classifying hypnosis I shall designate it as No. 2, in contradistinction to that of the normal state, styled No. 1. Under state No. 2 there are many phases, some of which we are well acquainted with, *a*, idio-hypnosis; *b*, induced-hypnosis; *c*, post-hypnosis; *d*, *la fascination*, and so on, the subdivisions being as various as are the possible changes to personalities of the subject. In some of them we may find the so-called phases of lethargy, catalepsy and somnambulism, but there is no order of distinct or definite states or phases which the subject will assume as a personality. The stages are not uniform and do not occur in sequence; indeed, so many are they, that those who are acquainted with the subject will agree that no hard or fast lines can be drawn. Sometimes memory is active, at others inactive; in some there is consciousness, in others, unconsciousness.

In the consideration of hypnotism, particularly of that state known as somnambulic, we are struck very forcibly

with the number of personalities which an individual may be caused to assume. In some cases the assumption appears to be the result of suggestion, in others, to the manifestation of consciousness, which seems to be separate and distinct from the individual's ordinary personality, and in speaking of the subject, it would be well to bear in mind that the sum total of the experiences occurring in "personalities," go to make up the "individuality."

Is there anyone capable of marshaling before his mind's eye consciously all the experiences which he has undergone in a life-time? Is anyone capable of recalling all the planes of consciousness either in the waking or sleeping states in which he has exercised his intellection?

ON MOTOR HALLUCINATIONS.*

Communicated to the Psychiatric Society of Italy, at the Sixth Congress in Novara, September, 1889.

By PROFESSOR TAMBURINI.

PREFATORY NOTE.

Whatever comes from the pen of Professor Tamburini must be deserving of the serious attention and polite deference of every intelligent and earnest student of alienistic literature. As a clear-sighted and circumspect investigator of obscure psychical problems hardly any writer of the present day ranks higher. The article of which we now present a translation, cannot fail to prove interesting, and, we venture to add, also, instructive to every reader of the ALIENIST who has had the advantage of prolonged practical observance of the endlessly diversified forms of mental disease; and it is very probable that few who have passed any considerable length of time in any large hospital for the insane have not had the opportunity of observing some cases of the type so lucidly treated of by Prof. Tamburini. The writer of these lines well remembers one case which was many years under his care. It was even more accentuated than any of those related by Tamburini. The utterances of this long sufferer were not in the form of monologue. There was a double personality at work, and sad to say, the second individual engaged in the colloquy was no other than the arch enemy, Satan himself, who, as his victim, a very intelligent and a very good woman, repeatedly affirmed, had taken up lodging in the roof of her mouth. It is well known that old Clooty almost invariably selects the good for his severest temptations. It was so with Job (be it reverently said), and with One far holier than he. Many times did I hear the dialogue that passed between my good, pious patient and that relentless old scoundrel, but the words were not so clearly pronounced as to meet the exigencies of a short-hand reporter. But the patient (not without trembling) was so obliging as to repeat to me the threats of the fiend. To my question: "What has that fellow been saying to you?" her reply was: "He says he'll gar me di-t;" that was: "He will make me do it." She was a Lowland Scotch woman, and a better never breathed. Her own utterances were in a very low tone—tremulous, and with the shedding of floods of tears, but they moved not to any compassion the case-hardened old wretch.

The demoniacal drama went on, little changed, for two or three years, despite her earnest prayers for relief, and despite those of the regular

* Translated by JOSEPH WORKMAN, M. D., of Toronto, Canada.

Sabbath Day preachers (that is to say, if they kept the promises vouched to her entreaties).

The matron of the asylum, a very kind and sensible woman, one morning asked me would I have any objection to allow Mammie C. (so she was styled, because of her motherly kindness to all needing it) "a glass of toddie at bedtime." I said, "Would she drink it?" The matron said she thought she would. Probably the experiment had already been made. "Very well," I said, "let us try it," and, as the conqueror of Pelee Island, in 1838, said: "It was done accordingly," but with happier result, for in about half a year the devil was driven out by another more potent than himself, and I did not deem it wise to withdraw the guard. From the day that old Sooty withdrew I heard him no more. My patient, however, begged of me not to discharge her, and she was so valuable an inmate that I complied with her request. In truth, she "*was worth gold.*" To tell the whole truth, I feared the old brute was watching for a chance to re-enter, and I was by no means certain that the same precaution to keep him out would be continued at her home. She staid with me over twenty years, and would have staid longer, but when she learned that I was soon to quit office, she decided to leave, also. She sent me a photo of herself and guid auld man some two years afterwards; and there they sat, cozy and quiet, in the old homestead.

I could add a few additional cases, but none so classic as the preceding. I did indeed, many and many a time, wish that the devil was expelled from all Christian pulpits. I never saw any good coming from preachings in which he was spoken of; but I did see and hear an amazing amount of evil. Of all the agonizing forms in which insanity falls on its victims, I do believe that the conviction of being possessed by the devil is the most horribly distressing.

I.

SEGLAS, when calling attention to the relations between the function of language and hallucinations, demonstrated that we should admit a special class of hallucinations which he calls *psycho-motor verbal hallucinations*, which consist in a morbid sensation of words, not perceived by the person in the form of auditive or visual images, but rather by means of motor images. Whilst fully accepting the theory advanced by me, in 1880, and now universally accepted, that hallucinations essentially consist in an *irritative state of the psycho-sensory centres of the cerebral cortex*, and setting out from the undoubted fact that the mental image of a word consists of three sorts of images: The *auditive*, the *visual* and the *motor*, which have their seats, thus: The first in the cortical centres of hearing, the second

in those of vision, and the third in those of motion. He has been led to admit that the hallucination of a word may be the result either of an excitement of the auditory sensitive centre (*verbal acoustic hallucination*), or of the visual sensory centre (*visual or graphic verbal hallucination*), or of the motor centres of speech, and in this third case there must really be a *psychomotor verbal hallucination.*

Seglas founds this rather ingenious idea on some more or less demonstrative cases, one of which was that of a woman who labored under hallucinations of all the senses, and among these were internal epigastric voices, which sometimes obliged her to pronounce certain words against her will. At these times she felt that these voices were spoken in her mouth, and she was constrained to move her tongue; but her mouth remained closed, and no sound was uttered—she understood what they said "*from the movements of her own tongue.*"

Another woman, who also suffered from hallucinations of all the senses, and among these from voices, had some which she perfectly distinguished from the others, because she did not hear them with her ears, but, as she said, by means of the *movements made within her*, which told her the words. When the voices speak to her she is seen to move the lips, and to pronounce the words indistinctly, and afterwards she repeats them aloud; and thus she is forced to speak all she is thinking.

In the recent International Congress in Paris, on mental diseases, Seglas related two other cases of this sort. One was that of a paranoic priest, who, in addition to true auditive hallucinations (telephonic voices), has some of a *purely. labial character*, which are accompanied by a slightly accentuated auditive sensation, but they chiefly consist in movements of verbal articulation. The other case is that of a woman, who feels within herself certain priests talking continually, but she does not hear their voices; she, however, knows what they are saying, by the *motions which they provoke in her tongue.*

These cases, although giving a sufficiently clear idea of the phenomenon, do not, with exception of the last one, present an absolute neatness, for they were complicated with other hallucinations, especially the truly auditive, which render the discerning of the phenomenon very difficult, or they were complicated with motor impulses, which were very conspicuous, even up to the pronouncing of the words aloud.

A case quite typical, uniquely characterized by the phenomenon of which I am now treating, has come under my observance in the present year, and has been the subject of one of my clinical lectures. I shall now briefly relate it:

II.

B. E., aged 27 years, a female peasant, of limited intelligence. At the age of 15, after a severe illness, she had an access of melancholy with hallucination of voices, which told her she was "*lost eternally.*" This disorder lasted about four months. In March, 1888, shortly after marriage, she again became melancholy, apathetic, sleepless, and was generally troubled with dysmenorrhea and leucorrhea. These symptoms were succeeded by the disturbance which I am about to describe. Without previous presentation in her mind of corresponding ideas she perceives certain words "*forming themselves in her mouth*" (this is the expression which she uses to indicate them), consisting of curses, accusations and evil predictions about herself and everything belonging to her. In taking food, she felt these words *coming into her mouth:* "*You may eat a serpent! You may swallow a live toad!*" When she prayed, the words were maledictions and blasphemies against the Deity, and were formed in her mouth. This sensation was so vivid and overpowering that she was forced to repeat the words in a loud voice, and she fell, in consequence, into a state of mania and desperation.

At present she adapts herself to her sufferings, and gives a pretty clear account of them. She is always tranquil,

and is no longer obliged to repeat aloud the voices which are *formed in her mouth.* She does not hear these words as if they were voices, but she feels them *forming in her mouth*, as if she was pronouncing them, without really doing so. She feels them in her tongue, or rather, in the point of it, which she perceives to be subjected to a slight but continual movement, described by her as a rhythmic motion of coming and going from behind forwards. This movement is really perceptible to us, either on applying the ear over the closed mouth, when a very faint oscillatory sound from the tongue is perceived, or by causing her to open the mouth, when it is seen that the tongue is the prey to very trivial oscillations, not only in the point, but in all directions, even on the dorsum and the margins. The lips, on the contrary, remain always motionless. She says that along with these movements of the tongue she feels the words forming in her mouth rapidly and continually, and she is able to tell at every instant what words she is feeling in formation. But, besides being convinced that these movements have more of the character of a clonic spasm of separate groups of muscular fibres than of motions of articulation, even incipient, we are readily satisfied that this perception of the words is not closely colligated with such movements, for when the tongue is forcibly held motionless she perceives them all the same. Still further, when she really pronounces other words aloud, she feels, under formation in her mouth, the wonted ones of abuse, blasphemy, etc., etc. From the intensity assumed by the latter in the past time, she was forced to pronounce them promptly, but at first she felt them formed in her mouth, and afterwards was constrained to utter them. It is needless to say that her will is powerless to arrest or even to retard the act. In this case the fact of contrast is also singular, the constant antithesis presented by those special hallucinations. Whatever she may be doing, whether eating, working or praying, the words are revilings, threats or bad wishes against her operations; and even when she hears the

name of God, or those of the Saints pronounced by other persons, she feels, forming in her mouth, blasphemies against them; and when she is not engaged in any sort of work the words are malicious wishes against her, such as: "*May the devil take you,*" etc. It is very remarkable that the patient does not attribute these special voices to her persecutors, but recognizes them as the effect of an internal evil which torments her, and of which she can give no explanation, nor does she, with her limited intelligence, attempt to give any.

In the close psychical examination of the patient, made by us, but from which we obtained only a conviction of the limited range of her intellectual functions (a limitation which, however, renders more recognizable the exactness and spontaneity of her assertions respecting the trouble under which she suffers), we endeavored to determine to what category she belonged, in relation to the so-called physiological *interior-language*, that is to say, whether to the *auditive*, the *visive* or the *motor* type, of *Charcot* and *Ballet.* Although the research, owing to her limited intelligence, was not very fruitful, yet we were convinced that the case must be assigned to the motor type, since we were quite able to exclude the idea that in the internal representation of the words, these were presented in the form of either acoustic or visual images.

The physical examination showed a cranio-facial type tending to cretinoid, oscillatory motions in various muscles of the face; but normal sensibility on both sides of the body. The organic functions regular.

I do not purpose to dwell on the interest presented by this case with regard to the phenomena of *association per contrast*, of which we have here a very evident morbid exaggeration, in consequence of which there springs forth, unforeseen and very distressing, in almost every act, an idea quite antithetic to that act, and this is exhibited in consciousness in the particular manner of a special hallucination. Neither will I stop here to show the interest of the case from the point of view of *double personality*

(understood as a correspondent delirium), in which the phenomenon I have undertaken to study, is also a potent factor; for it is natural that the constantly antagonistic character of the intruding ideas, their formulation independent of any participation of the habitual *ego*, their imposal into the mechanism of the word, should awaken the notion of an entity extraneous to the real *ego*, whatever this may be, or in what manner soever it may act, within itself; just as happened in the majority of the cases of *Seglas*, in which these special hallucinations imposed on consciousness, as the work of certain persons or persecutors who existed and talked inside the patients. On the other side our case proves that this hallucinant element, is not in itself sufficient to constitute the delirious notion of a double personality; for although the hallucinative phenomenon was here very conspicuous, yet there was no morbid state of consciousness in relation to personality; but it proves that another potent factor must enter into those cases, probably a primitive delirium of persecution, or at the least, a truly paranoic constitution, which was not verified in our case.

But I intend to analyze the case uniquely from the point of view of the special germs of the hallucinations I have undertaken to study, and of which it appears to me to be quite demonstrative.

In the case which I have described there was neither vision nor acoustic hallucination; nor was there any idea of persecution. There was simply the perception of words, which, as she said, she learned in her mouth, not in the form of voices, but by the sensation of a sort of slight movements produced in her tongue, and she found these even when the tongue was engaged in the voluntary pronouncing of other words, or when it was forcibly held immovable outside the mouth. Here, therefore, we have a true *motor-verbal hallucination*, that is to say, of words which are perceived solely by means of a sensation corresponding to that of the movements of articulation, which would be accomplished were the words

actually pronounced, and they are equally perceived whether a sort of initial articulation is effected, or this does not take place at all.

In this case it is therefore necessary to admit, first of all, that there arises, in the cortical centres, the image of the word—an image which is accompanied by the feeling of a corresponding initial movement of articulation, whether this has been accomplished or not. Now this image of the word, which is neither visive nor acoustic, but simply one of articulation, can be no more than a *motor image*, that is, the image of the movements necessary for the pronouncing of the word—an image, on the nature of which there has been much discussion, and of which I now venture to treat in what follows:

We have in these cases, quite naturally, a motor image which is not physiological, but morbidly intense, as hallucinations are wont to be.. We may thus understand how it happens that, once the motor image of the word has arisen, it should, by its morbid intensity, be perceived, not as a central part, as a thought or a pure and simple image, but rather that it is carried towards the parts to which the impulse is directed, which is unprisoned at the centre, thus producing a sensation analogous to that which would be produced had the word been actually pronounced, and quite as exactly, just as in a visive hallucination, an image so vivid is produced as perfectly to equal that of real vision.

Now, the motor image of the word cannot, as is admitted by all, have any other seat than in the motor centre for language, that is, in the inferior part of the *ascending frontal convolution* and the *foot of the third frontal*, where the centre for the motions of the tongue and the muscles which serve in the pronouncing of words, is located; hence, this special sort of hallucination, which consists in a verbal image, morbidly intense, has its seat in the before-mentioned psycho-motor centre, and constitutes, therefore, a true and proper *motor-verbal hallucination*, that is to say, a special class of hallucinations, whose seat, instead

of being in the *psycho-sensory* cortical centres, is in the *psycho-motor* centres of language. We can thus understand why it happens that when the motor verbal image (that is, the irritative state of the related cortical psycho-motor centre), is of moderate intensity, there will be a motor hallucination of the word, but without the corresponding motions of articulation; if the intensity is greater the hallucination will be accompanied by initial movements of articulation, without, however, the pronouncing of the word; and when the image is of very great intensity, there will be, because of the force of the motor impulse started from the centre, a true and proper pronouncing of the word; the simple hallucination becoming transformed into a true and proper irrestrainable impulse, analogous to all the other impulses that take part in the so-called compelled fixed ideas, which, in my opinion, would be more appropriately designated, as I have proposed, irrestrainable, impulsive ideas, which constitute a sort of epilepsy in the psychical sphere; this expressive term is now applied in pathology to certain uncontrollable vomitings and motions.

IV.

The reality of motor-verbal hallucinations, though not perhaps often presented so clearly as in the case described by me, is not so rare as may at first appear. The cases of the so-called psychical hallucination of Baillarger, in which no true and proper sensory element whatever is included, should certainly belong to this division.

A phenomenon of motor-verbal hallucination is verified in certain patients, one of whom I have long had under observance. These have among their hallucinations that of talking to other real persons, without pronouncing a single word, or even moving their lips. In such cases there must be an acoustic hallucination in respect to the sound of the voice, but there undoubtedly is associated with this a motor hallucination which must, in part, have its seat, as far as regards the emission of the voice, in

the laryngeal apparatus (the centre of vocal innervation of which Masini has demonstrated to be localized in the cortex of the foot of the ascending frontal and the third frontal in close proximity to the area of Broca), and in part in the apparatus of articulation, as respects the sensation which the person affected experiences, of articulating a word which he does not at all pronounce.

An analogous hallucination as to motor-verbal images, is certainly that of the so-called intuitive medium writers who feel the words arising in the brain unwilled and not before thought of, which they attribute to spirits, but they neither hear them as voices, nor see them as graphic images, and they are obliged to write them. In some of these cases, such as the quiet typical one of Seglas, it is rather probable that the motor images were not those of oral articulation, but of graphic motions, and then we would have graphic motor hallucinations which have their seat, not in the psycho-motor centre of speech, properly so called, but in that for the movements of writing, which is now held to be in the foot of the second frontal convolution.

We hold that the conception of motor hallucinations, which in our opinion is the most appropriate, should not be limited solely to the psycho-motor centre of speech, but ought to be extended to the psycho-motor centres of all motions, and of every part of the body. If a morbid excitation of a specialized functional centre, such as the cortical of language, is capable of producing a correlated verbal-motor hallucination (typical examples of which are now known), there can be no reason for not admitting that a similar excitation, when it has its seat in the other psycho-motor centres for other parts of the body, should produce the like hallucinations of movement in the correlated parts of the body. Certainly examples of this part are not wanting. We have a very clear one in the state of dreaming, which is but a more or less lawless series of physiological hallucinations, in which we frequently have the sensation of accomplishing partial

or total movements of the body, without at all moving from our bed. Another similar and pretty intense hallucination, is that which is frequently verified in dreaming; it is that of falling down a precipice, or of flying. The latter hallucination was certainly, from a true and morbid state, very frequent in those raving demoniacs, who, so noted of old under the designations of witches, and the possessed, believed, and even under torment maintained, that they had been carried flying on a broomstick, to the noctural assemblage of the witches' sabbath. Similar motor hallucinations are met with, also, in the insane, who have the complex hallucination of occurrences taking place around them, in which they would appear to take an active part, and to perform correlated complex acts and movements.

In this category of motor hallucinations, a special order appertains, which are verified outside the domain of mental alienation, but which, from their importance and exactness, merit attention, and all the more so as they furnish the best demonstration of the central seat of these phenomena; we mean the *hallucinations of persons who have undergone amputations.* It is a fact of common observance, and is related by all surgeons, that almost all the amputated have, as relates to the stump, a species of fantasy of the part amputated, and they feel as if it were present for a longer or shorter time.

Weir Mitchell instituted an important study on this subject; and he states that out of ninety cases, the fact failed to be verified in only four. This sensation of a removed member certainly consists in a sensory hallucination as regards the pure sensation of the presence and the position of the parts amputated, and also as regards the feeling of pain, which the patient believes to come from some part of the wanting limb, in which it is, to him, localized, just as if the part was still present, and he complains of pains, *e. g.*, in the fingers that belonged to an arm amputated at the shoulder. But with these purely sensory hallucinations, there are frequently associated others,

equally definite, of motions in the absent parts. We meet, for example, with involuntary movements of flexion and extension, which the amputated feel to be effected in the fingers, the hand or the foot, now absent, and these usually become very painful. But at other times, and even more frequently, there is a hallucination of true and proper voluntary movements, which the amputated feel to be accomplished in the absent parts; and thus it happens that by concentrating, in some degree, their attention and will, they can provoke, with much exactness, the sensation of motions made by those parts, especially by the fingers. In a case related by Weir Mitchell, the patient felt distinctly the shutting and opening of his absent fist, the apposition of the thumb and fingers and the disposition of the fingers for the motions of writing, etc., etc.

It is worthy of attention, that in the majority of the cases, these imaginary motions of parts absent are accompanied by painful sensations, which are proportioned to the intensity of the effort the individual has to make in order to accomplish the imaginary act. These sensations usually seem to be localized in the absent parts, but sometimes they are also perceived in the extremity of the stump; and they are verified not only in cases in which the motor muscles of the parts, which seem to be moved still exist, as would be the fact in imaginary motions of the hand after amputation of the inferior portion of the fore-arm, but they are also equally verified, for example, in the hand, even when the related muscles have been totally removed, as in amputation of the humerus or disarticulation of the shoulder.

In these cases it is clear that the seat of the hallucination must be central. The centres in which the motor images of the parts amputated have been deposited may be excited functionally even when the parts of the body innervated by them no longer exist. Now, an intense functional excitement produced in these centres, may arouse a representation of the related motions, quite as distinct as if they had actually been accomplished, and

their appearance of reality will be strengthened and rendered more evident by the cutaneous and muscular sensations which give the illusion of the existence and the position of the wanting part.

That this illusion of movement may acquire an intensity so great as to constitute, in persons of normal mind, a true and proper hallucination, which notwithstanding that it is perceived to be such, has not from this fact any less evidence, may be explained by pathological anatomy. The cause of it must be an irritation, transmitted to the nervous centres by the formative and regenerative process, which, as is shown by the splendid researches of Hazen and Gilbert, is verified contemporarily with the degenerative and atrophic in the cut nervous trunks; in which, besides the well-known terminal fibre-neuromata, there have also been observed, as in the cases of Vulpian, Charcot and Etienne, true and proper processes of ascending interstitial or parenchymatory neuritis, with diffusion of the process to the spinal medulla, in the form of transverse myelitis. Now, the radiation of these irritative states to the cortical centres must be the agency which determines the lively instances, and often continuous character of the sensation. In fact galvanic irritation of the nerve plexuses remaining, as that of the brachial after amputation of the arm, is capable of awaking the like sensations of movements of the hand which is no longer present.

There are therefore motor images such as to assume the character of hallucinations; they are produced in the cortical nervous centres of motion, of the several parts of the body, and hence they are true and proper motor hallucinations. Their central seat is well demonstrated by the absence of those parts of the body which had been innervated by those centres, just as the central seat of sensory hallucinations has been clearly demonstrated by their occurrence in individuals deprived of the peripheral organs of sense.

V.

Up to this point we have spoken of motor images as

the starting point of motor hallucinations, without entering on the question of their nature. In order to understand clearly the intimate mechanism of these special hallucinations, and perhaps also of hallucinations in general, it is necessary to enter, for a moment on this question, especially with the view of replying to the grave objection which may be advanced against the conceptions expressed by us; and this is, how can a motor centre ever become the centre of a sensation, either physiological or morbid?

It is known that the opinions on the intimate nature of the motor image differ widely. According to some writers—as Bain, Meynert, Stricker, it consists of a special sensation, which accompanies the liberation of the centrifugal motor current from the cerebral centre; but according to others, including Bastian, the motor image consists simply in an image of the muscular sense.

Let us briefly analyze the principal opinions on this subject, in order that we may better appreciate their value.

Bain designates the sensation of movement, the feeling of the energy which is developed coincidently with the centrifugal current of the nervous force.

Meynert holds that there enter into every voluntary act, as essential elements, both the perceptive and the mnemonic images of that which he calls the sense of innervation, and this accompanies every movement.

Stricker, who occupies himself particularly with the cases of the motor images of words, holds that they consist in the consciousness of the impulse transmitted from the motor centre to the muscles destined for the pronouncing of words.

Beaunis, after a long discussion of the arguments for and against such an opinion, concludes that there is no difficulty in admitting that in the motor-cell itself there takes place a state of particular consciousness, which corresponds to the degree of activity which it develops, and transmits to the motor organ.

Charlton Bastian, on the contrary, regards the sensations of movement as resulting from the assemblage of the centripetal impressions that proceed from the skin, the muscles, tendons, aponeuroses, and articular surfaces, which are perceived in a special centre, called by him the cinesthetic centre, or centre of movement, which coincides with the centre of tactile sense.

Cramer, in his most recent work, resting on the researches of Nothnagel, Funke, Leyden and Jastrowitz, regards the images of movement as a special product of the muscular sense, thus admitting the existence of centripetal paths, which have their origin in the muscular, and whose specific energy consists in the fact that they carry into the cerebral cortex sensations of movement which are then transformed into motor images, and as such remain deposited there.

Confronting these opposite opinions some authors have proposed intermediaries, which at present seem to be more acceptable.

Lewes, while admitting that the impressions of sense may be carried directly from the muscles to the cerebral centres of movement, by means of the motor nerves, has held that the representations of movement result at the same time from centripetal and centrifugal currents.

Spencer expresses a similar opinion, saying that to represent our movements is in part to rewaken the sensations that accompany them, including that of muscular tension; and also in part to excite the motor corresponding nerves.

Charcot holds that the motor representations are effected in the cortical motor centres, and precisely in the motor nervous cells of these centres, and that they are principally constituted by the feeling of the innervation of the nervous discharge, whilst the notions furnished by the muscular sense (the cinesthetic of Bastian), are stored up in the cortical sensitive centres. The former, as he thinks, are truly indispensable to the production of willed movement; the latter intervene consecutively, thus

completing, directing and perfecting the movement in its process of execution. Elsewhere, on the other hand, the same author designates the motor images of words as representations of the muscular sense, which are deposited in the motor centres.

But the author, who summarizes, in the most complete manner, the mixed theory of sensation and representation of movement, is Wundt, who holds it to be a result of three factors; 1st, of the sensation of pressure on the skin, and the subcutaneous parts; 2d, the sensation of contractions of the muscles (muscular sense properly so called); 3d, the sensation of central innervation of the motor organs.

Now it seems to us that in the midst of opinions differing so widely, that which ought to clear up the question is the taking into account whatever physiology, aided by clinical knowledge, teaches us respecting the nature of the cortical motor centres. It is beyond doubt that, for the production of a movement, the first central functional act must be a functional excitement in the corresponding nervous centre; that by the repetition of the movement there must be produced in the motor centre that special modification which constitutes what is called the organization of the functional act, in the corresponding centre, which is called the image, or mnemonic residuum of that same motor act, and which must with every reproduction of the movement, first be awakened as its representation. In order therefore to explain the intimate nature of these central acts which have their seat in the motor centres, it is necessary to know the functional nature of these same centres.

The most recent physiological and clinical researches have constantly more confirmed the theory announced by me as far back as 1876, which was that every cortical centre is the focus of reception and perception of the sensory excitations proceeding from the corresponding part of the body, and is at the same time the point of departure of the centrifugal volitional excitation over the

muscles of that same part. The well-known researches (citing only those most known) of Ferrier, Carville, Duret, Maragliono, Charcot and Pitres, and of many others, have demonstrated the undoubtable part which these centres have in motor function; the facts related by Hitzig, Schiff, Munk and Goltz, for demonstrating on the other hand the importance which they have in regard to the functions of the tactile sense, and the muscular sense, or consciousness; and finally the researches of Luciani and myself, and those of Tripier and more recently of Luciani and Seppilli, confirmed by the histological series of Golgi, on the structure of these centres, and by those of Marchi and Algeri on the fibres injured by descending degeneration, from which the result is the mixed nature of these centres. All these have rendered now undoubted the fact that the motor centres of the different muscular groups are commingled with the centres of the cutaneous sense and the muscular sense of the same parts; that, in short, the cortical centres, are senso-motor centres.

Now, the mixed nature of these cortical centres being established, we can understand why that functional excitation of them which precedes every motor act, will give origin to the reproduction of those images of the muscular sense and the tactile, which habitually accompany such motor act, and will, in their complex, certainly constitute the sensory image of the movement, whilst it will at the same time, give origin to the centrifugal impulse to the nerves and muscles which must be brought into play in order to produce the same movement. These two functional movements cannot be sundered; they are produced simultaneously; and at the same time as the functional excitation sets out from the motor elements of the centre, by way of the centrifugal path, towards the parts which must act in order to accomplish the movement, the images of the tactile and the muscular sense, which are called forth in the sensory elements of the said centre, are carried, and as it were, projected towards the same parts, which, in their turn, become, in the exci-

tation of the motor act, the point of departure of the sensations that accompany this act.

We are thus enabled to interpret the so-called sense of motor innervation, without requiring to have recourse to the hypothesis of a special consciousness in the motor elements, but instead of this, a consciousness of the functional excitement of the sensory elements of the cortical senso-motor centre, which is synchronous with the excitement of the motor elements of the same centre. We can thus also understand the physiological representation of the movement, when it is not accomplished, as being constituted by the calling up of the sensory, tactile and muscular images of the movements, that accompany a centrifugal impulse which, though producing, in the nerves and in the muscles deputed to movements, a modification equal to that of the initial motor act, yet does not produce real movement.

From the physiological representation of the movement to its pathological perception, the step is short. The morbidly intense functional excitement of the senso-motor centre, being of a nature and degree different from that which produces voluntary movement, or convulsive movement, will awaken in so lively a manner, the sensory images of the respective motor act, by which the related centrifugal impulse is at the same time set free, that the act may appear as if in process of execution. And when the parts deputed to the movement exist, and are in normal condition, the motor impulse which is directed to them will produce in them such modifications that even without the accomplishing of the movement, or with it in a mere initial and imperceptible manner, there will come from these parts to the sensory elements of the same centre, new images, which, by reinforcing those primitively aroused in it, will produce the complete illusion of an accomplished act, that is to say, an hallucination of motion. In a complete hallucination of motion, with the peripheral parts intact, we can therefore distinguish three phases:

First, The central phase, constituted by the awakening of the sensory images, in the cortical centre.

Second, The centrifugal, constituted by the motor impulse, which is directed from the cortical centre to the nerves and muscles destined for movement.

Third, The centripetal, represented by the sensations proceeding from the peripheral apparatuses of movement, by reason of the modifications which are aroused by the motor impulse that has reached them.

These phases are, after all, but the pathological correspondents of those which are produced in every true and proper physiological movement.

Of these three phases, however, the third, which, though it has so great a part in organizing the physiological representations of movements, in the centre, is, on the contrary, not necessary for the production of motor hallucination. This is proved by the hallucinations of the amputated, in whom there is present so complete an illusion of the existence and the movements of the wanting parts. These facts prove to us that the simple awakening of the sensory images of motion in the centre, and their projection to the periphery, which accompanies the excitation in the centrifugal path of the motor elements of the cortical centre, is sufficient to produce a true and complete hallucination of movement.

There are yet additional facts which prove that the sole awakening, in the cortical centre, of those images which accompany the related centrifugal impulse, is sufficient to produce a real movement, even when the peripheral apparatuses of motion have completely lost the power of sending to the corresponding centres the sensory images correlated with the movements. The case related by Demaux is, in this relation, very instructive: It was that of a woman in whom there was complete loss of both tactile and muscular sensibility on one side of the body. When she was told to make a movement on this anæsthetic side, she accomplished it with exactness, but without any consciousness as to whether the move-

ment had been made or not. If the limb was arrested at a certain part of the movement, and she was unable to know the fact by sight, she did not perceive the interruption, and she believed she had made the movement. In this case there were only the images, which were awakened in the centre, and related to the movement for which the impulse set out, images which would have accompanied the movement had it been completed, for the real sensation of it was absent. These images sufficed both for the accomplishment of the act and for giving to it, or better, for simulating, the consciousness of an accomplished movement. A complete hallucination could in fact be produced in this woman, by telling her to move the arm, but at the same time keeping it so restrained as altogether to prevent her moving it, and in such a way as to prevent her seeing it: she made an inceptive effort, and then remained tranquil, believing that she had made the requested movement, though no motion whatever had been effected.

VI.

We can thus form to ourselves a sufficiently clear conception of the different orders of the hallucinations which we have undertaken to examine.

In the verbal-motor hallucinations of the insane, there are awakened, by a morbid excitement of the sensomotor cortical centres of language, at the same time, both the sensory images of the movements corresponding to the extrinsication of the proper verbal representations of the excited elements, and the relative impulse for these movements. According to the degree of the morbid excitement of the centre, there will thus be produced, in the nerves and muscles destined for the pronouncing of words, modifications of peripheral innervation similar to those which would arrive at consciousness if the movement had been accomplished, though it had in reality not been effected; or there will be produced in the same peripheral motor organs, slight initial movements, perceptible

only to the consciousness of the patient; or again, finally, movements perceptible to other persons. In each of these cases there is produced a neat perception of the words, which have not in reality been pronounced, as in Seglas' cases, and in my own. If there chance to be here united a correlative motor hallucination in the laryngeal apparatus, and a correspondent acoustic hallucination, the patient will have the illusion of having really pronounced the words, and that, too, in a high voice. If, finally, the excitement of the cortical centre is yet stronger, the word will be spoken in the form of ungovernable impulsion.

By analogous mechanism, that is, by the co-existence of all of the three factors before named, there will be produced hallucinations of other movements, when the peripheral motor organs are intact, as in the cases in which the insane believe that they have performed acts and movements of locomotion in relation with other hallucinations, and in these cases, also, by means of a more energetic excitation of the cortical centres, the simple motor hallucination may be transformed into a true ungovernable impulse of the related movement.

On the contrary, in the cases in which the peripheral apparatuses of movement are not intact, but in which the tactile and muscular sensibility is completely lost, or the motor energy is paralyzed, there will be only the central phase (*i. e.*, the centrifugal) of the complete hallucinatory mechanism, which was present in the preceding cases. The same holds good, and with greater reason, in the hallucinations of the amputated, in whom we have seen that there is this in particular, that these hallucinations are undoubtedly awakened by the diffusion, to the cortical centres, of the irritative states of which the cut nervous trunks are the seat. For the same reason, there are in this phenomenon of the amputated, some very lively and permanent hallucinations of the tactile and the muscular sense, independent of those of movement—that is to say, the continuous sensation of the persistence of the wanting parts.

VII.

We hold that the conceptions stated by us, as to the genesis of motor hallucinations, should be extended to all hallucinations In fact, not only as regards the so-called motor centres, but all the cortical centres in general, the conception which now tends most to general acceptation, is that both the so-called motor sense and the special senses, are no other than senso-motor centres of the divers parts of the body, with which they are in functional relation; that each cortical centre is at the same time a centre of perception of the general or specific impressions of each part of the body, and is the point of departure of the impulsions for the proper movements of the said parts.

In consequence of this, the general conception also of hallucinations, as morbid functions of the cortical centres, necessarily undergoes modification: in this sense, that when there is produced in a cortical centre that special irritative state which is capable of determining an hallucination, if this is verified in one of the senso-motor centres of the limbs or of the face, it will determine the morbid perception of the movements associated with the related cutaneo-muscular sensations, as in the case of motor hallucinations; if this is verified in the centre of a specific sense, *e. g.*, the centre for sight, there will be, in addition to the morbid sensory perception (visual hallucinations) also the sensation of movements of the eye correlative with the functional act; for at the same time as the excitation of the cortical centre develops, *per se*, a visive perception, there is liberated from it, by means of the morbid excitement of the motor elements which are commingled in it, the related motor impulse toward the muscles of the eye, accompanied by the relative images of the muscular sense, the consciousness of which will constitute a motor image which will accompany the morbid visive sensation.

All this goes to explain (perhaps without the aid of the hypothesis of a centrifugal sensory current, which has

been proposed by Hagen, and upheld by Sergi,) the fact of the projection and the exterior localization of hallucinations, especially the visive; for by the morbid excitement of the cortical visive centre, there is produced, by means of the excitation of the senso-motor elements contained in it, either the real movement of accommodation, etc., which would accompany the real sensation, or the false sensation of this movement, which is for consciousness all the same; by all of which there is accomplished for consciousness quite the same as if the visive sensation had really taken place.

We therefore hold that as the various cortical zones are to be regarded as mixed functional centres of motion and sense for the various parts of the body, so into hallucinations, whether sensory or motor, there really enters the double element of the sensory images and the related motor elements.

VIII.

In summing up, therefore, I believe it may be concluded:

First, That besides the purely sensory hallucinations it is necessary to distinguish some motor hallucinations, which are more especially observed in the sphere of the movements of language, but they may be met with in any part of the body capable of motion.

Second, That the seat of these motor hallucinations must be located in the so-called psycho-motor centres of the cerebral cortex.

Third, That according to the degree of irritation of these centres, we shall have either simple hallucination of movement, or the transformation of this into ungovernable impulsion, even up to relative convulsions.

Fourth, That, however, taking into especial account the physiological and clinical data which lead us to admit the mixed senso-motor nature of all the cortical centres, it is to be held that these enter into every hallucination in the proportional part which pertains to each centre, both sensory images, properly so called, and motor images.

Case of Cerebellar Tumor with Monocular Diplopia as a Symptom.*

By Alexander B. Shaw, M. D.,

Professor of Diseases of the Mind and Nervous System, and Electro-Therapeutics, Beaumont Hospital Medical College, St. Louis.

ON the 18th day of January, 1890, I had the privilege of presenting clinically to the class of the Beaumont Hospital Medical College assembled at the St. Louis City Hospital, the case to which I now desire to attract your attention. Its symptom complex of cerebral tumor—of cerebellar tumor and its localizing symptomatology—is so full that it richly deserves a place high up in the list of classical typical examples. Furthermore, it beyond all doubt presented an instance of uni-ocular—monocular diplopia, which unquestionably was an example of that variety of diplopia classed as heterophoria.

History.—Charles Green, a Scotchman, laborer, good family history, never had been a drinking man. Eight years ago he accidentally received a blow on his head from a crowbar in the hands of a fellow-workman, which rendered him nearly, if not quite, unconscious for some time. Enjoyed good health until about last August, when one evening after a hard day's work, he suddenly became very dizzy and experienced severe pain in the back of his head, about the occipital region, which he thought would drive him wild.

Last November he had what he called a rush of blood to his head, when he had an intensely severe headache, which lasted several hours. From this time on he had more or less severe and almost continuous pain in the left half of the occipital region. He would go to bed with headache, get up with headache, and had headache nearly all day.

* A paper prepared for presentation to the American Medical Association, 1890, but not read because of absence of the author.

Prior to the November attack of severe headache he never had been unconscious nor delirious, but had often been very restless at night. His room-mate informed him that he talked in his sleep.

Shortly after the attack of headache which occurred in November he fell back on his bed when attempting to rise, and was unable to move or call to his room-mate for assistance for some time. Insomnia now became a marked feature. Later in the fall he fell, quite unconscious, in the water-closet, after which time he had frequent epileptoid seizures.

Locomotion gradually became more and more difficult; often stumbled and fell. He could not state when he began to stagger, but was sure he had walked badly for many months. Often felt dizzy, but never felt dizzy when his eyes were closed. No vertigo nor oscillation of body when standing with eyes closed.

Usually faces slightly to the left and a trifle downwards. The left ear is deaf. Diplopia of one eye only—the left; objects appear double to it at a distance of two feet. Left lateral half of each retina, or at least a large portion of each left lateral half is blind—right lateral homonymous hemianopsia.

Eyesight was good until about the last of December. The following notes were taken at the time of observation:

The field of vision for the right eye at a distance of fourteen inches is about eight inches in diameter. That of the left eye is, if anything, less. The ophthalmoscope revealed the existence of double optic neuritis.

He staggers and sways some, and leans to the left and rotates or circles to the left when walking.

If placed erect and told to square up and remain so, he soon droops the left shoulder slightly, then a little more and more—then suddenly very much, to the limit of his drooping. While standing a slight tremor of the whole frame is perceivable—he leans to the left when seated.

Patient vomits quite often and unexpectedly, without any preceding pains or nausea. Vomiting began about six weeks ago. Has frequent and severe attacks of active or subjective vertigo. Has slight epileptoid seizures, Jacksonian epilepsy; sometimes loses consciousness; always dizzy after a fit; surrounding objects do not seem to move; feels as though he is moving.

The left ear began to discharge pus about three weeks ago. Just before the discharge began he had a lump about the size of a silver dollar directly behind the left ear, which was lanced twice. It probably was an abscess of the soft tissues.

He never had earache in his life. Mental hebetude is a marked feature. It is evidenced by the slowness of response to interrogatories and a failure to quickly, or sometimes not at all, recall recent events. He forgets the names of those about him daily. Still he seems to remember quite accurately and readily remote events, for he never contradicts himself regarding such.

Active or subjective vertigo is a very prominent feature in Ménière's malady, and in this disease it is frequently associated with deafness, occipital headache, vomiting, staggering gait, tremor, and sometimes even unconsciousness—all of which symptoms were present in the foregoing case, but in it the ear affection was of such recent development, and there was such a full and complete symptom complex, pointing to either cerebral tumor or abscess, that I readily excluded Ménière's disease. A review of the symptoms leaves no doubt in the mind as to the existence of grave cerebral trouble. They indicate that a growth, probably a tumor, is causing increasing pressure within the skull. However, it must be conceded that an abscess might cause the gait to be unsteady, and give rise to convulsions, but such symptoms are more frequent and usually more pronounced in tumors than in abscess. The same may also be postulated of cerebral vomiting unless there are attendant febrile symptoms.

The absence of rigor or sweating, so frequently an

accompaniment of cerebral abscess, also points to tumor.

The headache might arise equally from abscess or tumor.

The existence of *double optic neuritis* also favors the idea that the symptoms are due to tumor.

If there had been a history of preceding ear trouble, inflammation of the mastoid cells, or suppurative disease of the nose at a remote period, the phase of the case would be somewhat altered, for such conditions frequently have their sequence in encapsuled cerebral abscess, which in many respects, at least so far as symptomatology is concerned, is the equivalent of tumor.

In view of the foregoing facts we excluded abscess. Examination as to sight reveals amblyopia, right lateral homonymous hemianopsia narrowing of the field of vision, and a most singular symptom which I hope some of the gentlemen present will be able to explain, viz., monocular diplopia. The left eye was diplopic.

This diplopia is of the variety known as heterephoria, for it was not habitual.

Diplopia, when not habitual, is usually due to a paresis of some of the ocular muscles, showing implication of the third nerve, causing a disturbance of the normal state of equilibrium of these muscles, but as it is limited to one eye in this case, how shall we explain its causation—what is the *modus operandi* of its production? Was it due to nutritive changes caused by vasomotor influences or irritation or destructive conditions of the trophic centers for some of the ocular structures, causing a difference in the angle of refraction? or to displacement of some of the rods, or from infiltration or œdema or some other condition of the eye—or could it possibly be accounted for by some change in the center for conscious perception of visual impressions?

The usual diagnostic signification of diplopia does not apply in this case because of the double vision being limited to but one eye.

At this stage of the diagnosis the question confronting

us was in what part of the brain do the symptoms indicate the tumor to be located? I think they warrant us in saying, "it is substentorial." The prominence of the symptom *vertigo* was so much so as to remind one of the possible presence of Ménière's disease and call for a differential diagnosis between this affection and cerebral tumor, associated with the severe and persistent occipital headache, the reeling, unsteady gait and cerebellar ataxia in the absence of any symptom pointing specially to involvement of the cerebrum, except possibly the hemianopsia, which however was of recent development, and might arise from cerebellar lesion, certainly suggested that the tumor was substentorial, and this view was strengthened by the fact that there was a marked misconception of equilibrium when sitting or standing as well as when walking, and still further corroborated by the rotatory tendency, which was a striking feature in the act of locomotion.

From this symptom-grouping I believed we would be justified in the diagnosis of cerebellar tumor, and yet more for the well-marked misconception of equilibrium as evidenced by the loose-jointed, unsteady, reeling gait, the cerebellar ataxia, the continuous disposition to rotate around the long axis of the body when walking and to lean or droop to one side; always the same side, the left, while either sitting, standing or walking, lead to the conception that the tumor was not only cerebellar but that it involved the middle peduncle or lobe of the cerebellum, and that it was the right middle lobe that was thus involved.

This opinion is, I consider, rendered a certainty by the occurrence of deafness of the left ear, due in this case, so far as the history of the case and sequence of symptoms would indicate, to perturbation or arrest of the function of the left eighth nerve after decussation of the fibers that assist in forming the lateral boundaries of the fourth ventricle had occurred, either in its path to or in the body of the cerebellum.

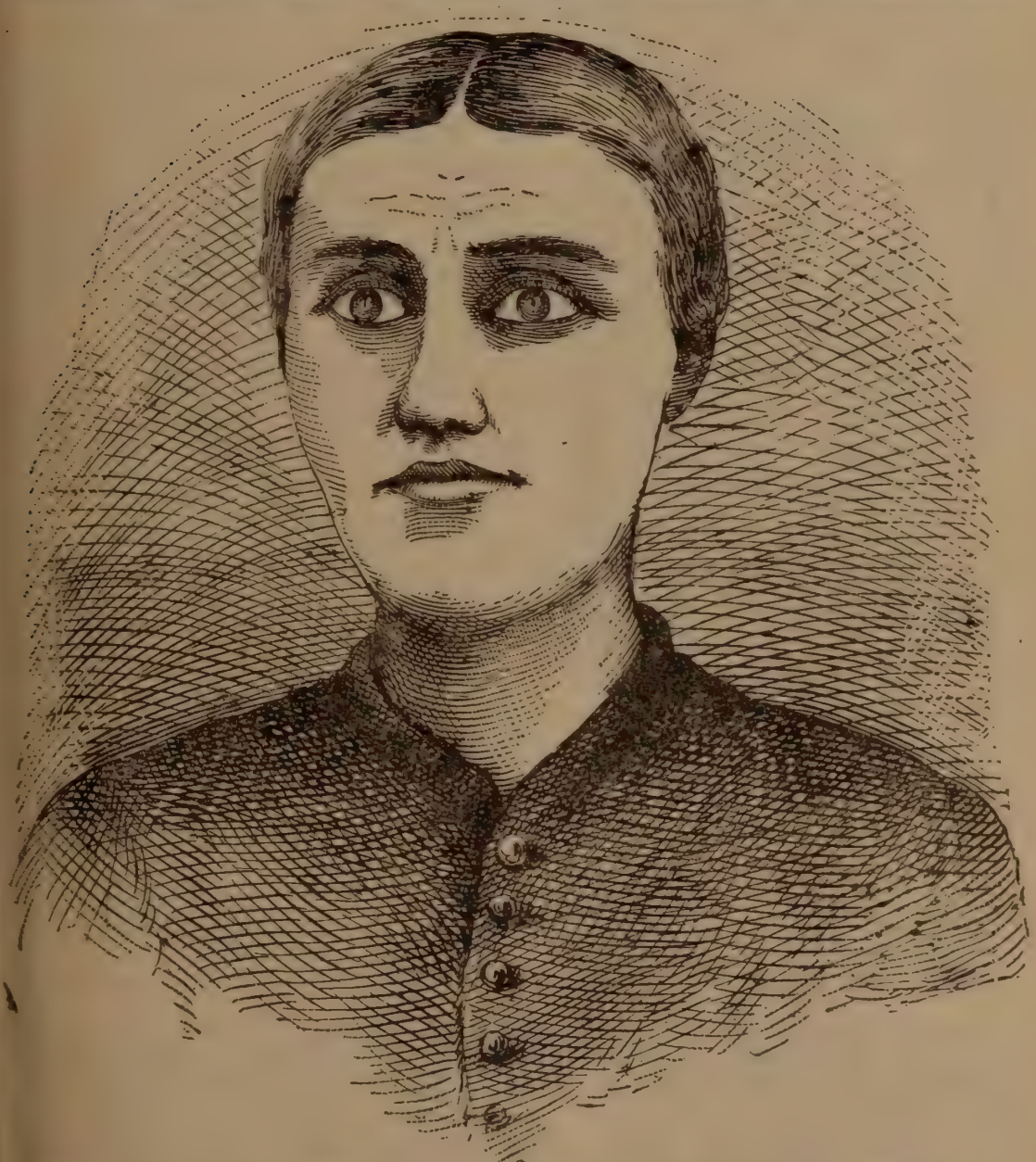
In making the above statement, I do so with a full knowledge of the fact that we are taught that the nucleus of origin of the eighth nerve is in the floor of the fourth ventricle, and also that Ferrier, Kussmal, Gudden and others, teach that the probable seat of our conscious appreciation of sound is in the temporal lobes along the inferior margin of the sylvian fissure, but some observers, among others, Foville, claim that fibers of the auditory nerve may be traced to the flocculus and gray matter of the cerebellum, and I believe that in this case we are justified in assuming that involvement of the cerebellar fibers gave rise to the deafness. But what caused the monocular diplopia?

The *post-mortem* findings in the foregoing case demonstrated the correctness of our diagnosis, which was made in detail, as recorded in this paper, and as verified by the original notes made January 18, 1890, by Mr. W. A. Kendall, student of medicine, which were presented to the St. Louis Medical Society on April 19, 1890, for inspection, when the case which is herein referred to was under discussion.

Notes on the Facial Expression of Cerebral (Multiple Cerebro-Spinal) Sclerosis.

By C. H. Hughes, M. D., St. Louis.

MANY have been the efforts of clinicians to portray the facial expression of disease, and perfectly satisfactory results have not, as yet, rewarded their labors in



this direction. The accompanying sketch is, therefore, made and offered as only an approximately satisfactory

presentation of the single feature of pupil appearance in this singular affection. We give a portion of the record in the descriptive language of the patient's daughter, a young lady of twenty-three years:

May 29th, 1889.

In the year 1878, my mother, being then in her fifty-second year, complained of having "a feeling in the muscles of her left arm, as if there was something alive in them and moving around." After a while, her third finger on the left hand became stiff, then, sometime after this, her whole hand began to tremble, but most of all, the thumb; and at that time, she had a feeling as if a thousand pins were sticking her, and a constant burning under her skin, which she has to this day, only a good deal worse. Then her feet began to swell, and she could not walk, as she was afraid of falling; and she did fall several times in making the attempt. Her feet became somewhat better after she had those spasms.

She had the first attack of spasms in the year

1882,	April 14th, 4 P. M.	1 time.
"	August 7th, 8 P. M.	3 "
"	September 22nd, 7 P. M.	3 "
"	October 15th, 8 A. M.	4 "
"	November 23rd, 10 A. M.	3 "
1883,	January 6th, 7 A. M.	3 "
"	April 7th, 11½ A. M.	3 "
"	July 26th, 8 P. M.	6 "
"	September 18th, 11 P. M.	4 "
"	November 16th, 6 P. M.	3 "
1884,	May 15th, 4 P. M.	7 "
1885,	February 8th, 3 P. M.	4 "
"	March 17th, 2 A. M.	3 "
"	December 18th, P. M.	3 "
1887,	June 15th, 7 P. M.	3 "
1889,	May, 15th, 8 A. M.	3 "

She had four or five attacks in 1886. These have continued to recur since May 1889, to this date June, '90.

When she gets these spasms her face turns very red, her eyes will look in one place, then her whole body will begin to tremble and twitch, and her eyes and head turn to the right side, and then she gives a loud scream, and

then she bites her teeth together and takes her thumbs in her hands and draws her knees up, and then her whole body begins to work, which lasts for about five minutes. After the last spasm she always vomits and then sinks into a quiet slumber, and when she wakes up her first question will be, "What time is it?" She is out of her mind for about twelve hours, and has very severe pain in her back and hands, but will feel very much better a day or two after the spasm, but on the third day thereafter, all her pain is back again. She says she got her sickness from excitement and fright, and these spasms come upon her almost always when she has grief or trouble.

The above description only shows the prominent symptoms which most impress the daughter. They are remarkably accurately described considering the description is by a non-medical observer, and indicate an acutely observant mind on the part of the narrator.

The description she gives is unmistakably one of a grand epileptic paroxysm, and the truth of the above account to nature has been verified by our personal observation. She has also frequent slighter epileptiform attacks and apoplectiform seizures. The initial symptom discovered by the patient, in 1878, in the muscles of her left arm were, evidently, the precursory fibrillary movements of a muscular atrophy, which has subsequently developed. The patient is now helpless; she can neither dress nor undress herself get up or sit down in her chair, or move about in any direction without assistance from others, but sits or lies all day where she is placed by her devoted husband or daughter, the former being himself a crippled chronic rheumatic.

She has no patellar tendon reflex now. This reflex was exaggerated in the beginning. She has no pupillary reflex to light (Argyl Robertson pupil), and but little power of accommodation to objects. Both pupils are abnormally contracted and stationary as in the illustration, giving the facial expression the peculiar fixed stare, which (with the immobile, anxious and distressed, but otherwise fixedly expressionless countenance also shown, is so characteristic of advanced cerebral sclerosis). No pen can describe the face

of long-standing cerebral sclerosis. The voluntary reflexes or reflexes of the spinal centers, connected with the voluntary muscles, are all either abolished or impaired. Deglutition and speech and all her movements, organic and voluntary, are slowly performed ("slow scanning speech" and dysphagia), the enforced deliberation of the voluntary acts she attempts, being almost painful to witness. There are no crises as in the last stages of the posterior spinal sclerosis.

Tremor is almost constant but still characteristic in the fact that it is greatly aggravated on attempting any muscular movement, "intention tremor."

The fingers of either hand and thumb are flexed and permanently retracted, and arthropathic changes in the contour of the knuckles and knees are manifest, as ordinary ataxic arthropathies. She still retains control over the anal and vesical sphincters, though her bladder and rectum are emptied tardily and without much force. She defecates and micturates with the slowness which characterize her speech.

This unfortunate woman has now lived under her affliction for over twelve years, and from her symptoms promises to live yet much longer.

Her husband would not allow an ophthalmoscopic examination, after having once consented to it; so the state of the fundus cannot be given. She has nystagmus and is mentally imbecile, to dementia, with previous psychical alternations of indifference and melancholy. Paradoxical contraction was not observed.

SELECTIONS.

CLINICAL NEUROLOGY.

CHOREA.—*Contribution to the Pathological Anatomy, with the Report of a Case.*—Dr. Charles L. Dana, Visiting Physician to Bellevue Hospital, reports the case of a Swiss, aged eighteen years, who without known cause began to have choreic movements, twelve years ago, at the age of six. The movements up to the age of twelve were not severe, as he was able to work and be useful. He was subject to so-called epileptic attacks. Never had rheumatism; no heart murmurs. Symptoms increased in severity between the ages of twelve and eighteen. At the last-named age he died of pneumonia.

Autopsy.—Heart normal; no vegetations. An old trephining hole lay over the left supra-marginal gyrus.

Microscopical.—A slight amount of lepto-meningitis; gray matter considerably injected; neuroglia cells not excessively increased; pyramidal cells, for most part, normal. *The chief changes were just beneath the cortex*, where the white matter was honeycombed with little spaces, round or oval. These spaces were empty or partly filled with blood-vessels. (No arteritis.) This distended and eroded the perivascular spaces, thus forming large dilatations, similar to those described by Dickenson. (Illustrated by a drawing.)

This process, the author believes, was non-inflammatory, and due to abnormal dilatation and filtration of the vessel's contents.

The optic thalamus, the lower part of the internal capsule, the anterior part of the caudate nucleus, also showed the honeycombed appearance. The fibers of the internal capsule were split up by interlacings and dilated vessels, whose walls were thin, degenerated and often seemed actually falling to pieces. Here was noticed a varicosity of the nerve-fibers, caused by bulging of the myeline sheath, as described by Berkley. There was hyperplasia of the connective tissue in the capsule, but nowhere else. The hyaline bodies, described by Dickenson and others, could not be found.

In the *pons*, vessels much dilated.

Medulla.—A neuro-fibroma, size of a pea, at the exit of the acoustic nerve on the left side. It had not destroyed any parts by pressure. The floor of the fourth ventricle was much honeycombed by very small cavities.

The author inserts a list of other autopsies for comparison. The list comprises the following varieties of chorea:

1, Sub-acute chorea of Sydenham.
2, Chronic " "
3, Hereditary " (Huntingdon's.)
4, Congenital "
5, Symptomatic "

He says it is only the first two classes of cases that form the chorea as ordinarily met with. It is this disease whose pathology and anatomy is here specifically sought and whose autopsical records are collected.

Summing up, he finds that in the sub-acute types of chorea, there is a hyperæmia of the brain and parts of the cord. In the brain this is not meningeal, but subcortical and basal. The arterial walls are paralyzed, dilated and badly nourished, so that exudations occur, and the lymph spaces become distended and eroded. There is sometimes stasis, thrombosis and spots of softening, or the walls give way, and there are minute hemorrhages. The lymph spaces around the ganglion cells are not dilated.

In older cases, the vascular and neuro-degenerative changes are marked. The small arteries are permanently dilated, a little thickened and degenerated, perivascular channels may be more eroded and distended.

There is now some connective tissue proliferation, and signs of degeneration in the ganglionic cells. The nerve-fibers show a varicosity. (Berkley's case and my own.) Hyaline bodies are seen.

In fine, we have in chorea, first, a vasomotor paralysis and trophic disturbance, affecting certain areas of the brain, and to a less extent, the cord. Then we have this becoming chronic, with connective tissue, hyperplasia and degenerative changes in ganglionic cells and fibers.

As for the localization of the lesion, the earlier English writers all looked for it in the basal ganglia, and their findings are, perhaps, a little biased by the expectation of seeing something in these localities. In some autop-

sies only the cord and basal ganglia were examined. We cannot, however, locate chorea in these places exclusively, nor in the globus pallidus, nor in the cortex. It is rather a disease of the intracranial motor tract, including its starting point in the cortex, and especially in its co-ordinating adjuncts, the lenticular nucleus and thalamus.

T. D.

Remote Effects of Ovarian Operations.—The *University Magazine* contains a timely editorial under the above heading. It says:

"Are the results lasting? Is the patient's condition definitely and permanently bettered? Will she continue to look upon the operation as a blessing, which has converted a miserable existence into a life of comparative or absolute health and comfort? That this is frequently the case is conclusively proven by reported cases. That it is so constantly the case as to constitute a justification for this operation in the absence of urgent and direct symptoms remains yet to be proven. In this relation the paper of Glaevecks (*Arch. f. Gyn.*, Bd. XXXV., H. I.) is most timely. He states that in nearly all cases where the ovaries were removed the mental condition was decidedly affected, in many instances a condition of melancholia being produced.

"Coe, writing upon the subject (*Medical Record*, April 19th, 1890), alludes to the frequency of persistent cerebral hyperæmia of ovarian psychoses, and even of active insanity, all well recognized as sequelæ of this operation. He also calls attention to the number of cases in which adhesions, consequent upon oöphorectomy, have produced such marked pain and interference with function that the possibility of this complication should make the surgeon hesitate before advising the knife.

"The fact that many of these operations primarily fail of their purpose must also be recognized. Now that the army of unsexed women has reached some formidable proportions, there are probably few practitioners who have not witnessed scenes of domestic infelicity productive of more misery than any amount of physical suffering.

"It is, we believe, by a careful study of the remote sequelæ of these operations, by a consideration of the many unsuccessful cases, by a knowledge of the effect of such mutilation upon domestic relations, that the operator will be guided in pursuing a wise and temperate course."

CAN WE DIAGNOSTICATE HYPERÆMIA OR ANÆMIA OF THE BRAIN AND CORD?—Professor Landon Carter Gray considers the above question in a paper read before the New York Neurological Society, and published in the *New York Medical Journal.*

After referring to the glib way in which anæmia and hyperæmia are spoken of by the general practitioner, the author cites the views of a number of eminent specialists to show that the diagnosis of these conditions is indeed a very difficult matter. Gowers says: "Where the ground is barren of facts, theory is always luxuriant."

Professor Gray believes very positively that the diagnosis is not possible by means of the nervous symptoms alone, *i. e.*, that the ordinary symptoms as given in text books, headache, flushing or pallor of face, delirium or vertigo, motor or sensory paralysis, retinal changes, motor or sensory paralysis, insomnia, etc., are not sufficient of themselves to warrant the diagnosis of anæmia or hyperæmia of the brain or cord. Other concomitant conditions must exist to make the diagnosis probable, such as cardiac conditions, certain forms of hepatic disease, tumors making pressure on the great vessels, anæmia, leucocythæmia, intense mental exertion or exposure to heat.

HEREDITARY CHOREA.—Some observations—Report of a case. By Theodore Diller, M. D., State Hospital for the Insane, Danville, Pa. (*Amer. Jr. of Med. Sc.*, December, 1889.)

After noticing the cases of this affection already reported, the author describes, in detail, his own case, that of a woman, age 47, whose affection began six or eight years ago. The choreic movements gradually increased since the onset of the affection. Her normal disposition, which was amiable, became perverted, so that with the progress of the chorea she became peevish, irritable and querulous, prone to sudden and violent fits of anger; became despondent, and threatened violence to herself and others.

The patient has nine brothers and sisters—all of adult age, and four of whom are choreic. The father of these children, two paternal aunts, and two paternal uncles had the "shaking disease" for many years. The patient's grandfather was choreic, and one of her children was attacked with the disease at the age of eight. In all

twelve cases in this family were traced, extending through four generations.

The author also quotes two additional cases furnished him by Dr. G. H. Hill, of Independence, Iowa, and another by Dr. G. Adler Blumer, of Utica, N. Y.

HEREDITARY CHOREA, WITH A CONTRIBUTION OF EIGHT ADDITIONAL CASES OF THE DISEASE. (*University Medical Magazine*, June, 1890.) By C. M. Hay, M. D., State Asylum for the Insane, Morris Plains, N. J.

Dr. Hay states the principal characteristics of this affection to be as follows:

1. The disease is directly hereditary, and frequently runs through four and five successive generations.

2. Usually it begins in adult life, between the ages of thirty and fifty years, but exceptions to this are frequent.

3. There is a very strong tendency to mental disease of some degree, and suicide is common in the affected families.

4. In the great majority of cases it begins insidiously in an upper extremity without any marked premonitory symptoms, but in some cases mental disturbance has preceded its onset.

5. The movements more or less rapidly become general and progressively more marked, some cases dying from the consequent disability, especially of taking sufficient nourishment. Emotion increases the chorea, which is considerably under the control of the will. Speech and the power of writing are impaired early, and lost in the last stages of the disease. The knee-jerk is usually exaggerated, and ankle-clonus is present in some cases, while the condition of the heart has been noted in few of the cases. Epilepsy and phthisis are frequent in the affected families, and the former may co-exist with the disease.

Six of the eight cases which the author records have been examined by him, personally; the other two are taken from the records of the Morris Plains Asylum.

The paper concludes with the following valuable

BIBLIOGRAPHY:

I. Dr. C. O. Waters' letter, dated Franklin, N. Y., May 5th, 1841. "Practice of Medicine." R. Dunglison. Lea & Blanchard, Philadelphia, 1884. Ed. 2. Vol. II.

Quoted by Sinkler, *Journ. of Nervous and Mental Diseases*, Feb., 1889.

II. Irving W. Lyon. *American Medical Times*, Dec. 19th, 1863.

III. Huntington. *Medical and Surgical Reporter*, Philadelphia, April 13th, 1872.

IV. Landouzy. "Societé de Biologie," quoted by Lannois. *Revue de Méd.*, Aug. 10th, 1888.

V. A. McLane Hamilton. "Nervous Diseases," 1881, page 375.

VI. Ewald. *Zeitschr. f. Klin. Med.* Bd. VII. 1884. Quoted by Sinkler.

VII. Clarence King. *New York Medical Journal*, 1885, page 468; and also *Medical Press of Western New York*, Dec., 1886, page 674.

VIII. Peretti. *Berliner Klin. Wochenschr.*, Nos. 50 and 51, 1885.

IX. Huber. Virchow's *Archiv.* Bd. CVIII, 1 and 2, 267-286; and *American Journal of the Medical Sciences*, Oct., 1887.

X. West. *British Medical Journal*, Feb. 26th, 1887.

XI. Zacher. *Neurolog. Centralb.*, 1888, No. 2. Quoted by *American Journal of the Medical Sciences*, April, 1888.

XII. Hoffman. Virchow's *Archiv.*, CXI, 3, 513. Quoted by *American Journal of the Medical Sciences*, June, 1888.

XIII. M. Lannois. *Revue de Médecin*, Aug. 10th, 1888.

XIV. Wharton Sinkler. *Journal of Nervous and Mental Diseases*, Feb., 1889.

XV. Theodore Diller. *American Journal of the Medical Sciences.* Dec., 1889.

XVI. G. Seppilli. *Revista Sperimental di Freniatr*, etc., 1888. XIII., page 453. Quoted by *Journal of Nervous and Mental Diseases*, March, 1890.

XVII. J. L. Bower. From service of Dr. C. K. Mills, in Philadelphia Hospital. *Journal of Nervous and Mental Diseases*, March, 1890.

Hughlings Jackson on Convulsions.—Dr. Hughlings Jackson in the Lumleian Lectures for 1890, divides convulsions into three classes, according to the region of the brain in which they originate. These regions are made up, automatically, as follows:

1. The spinal cord, medulla and pons.

2. The Rolandic region of the cerebral cortex and the corpus striatum.

3. The fore-brain or psychical portion of the brain. Ponto-bulbar convulsions originate in the first-named division, epileptiform convulsions in the second, while epilepsy *proper* arises *only* from a discharging focus in the fore-brain. While it is true that the fore-brain is non-excitable, yet katabolism, or rapid decomposition of nerve-cells, which is ordinarily the cause of convulsions, often stimulates tracts which are directly connected with the motor (Rolandic) region, and this results in determining a convulsion. Hence, loss of consciousness is a valuable sign in convulsions, as showing that the explosion has had its origin in the psychical portion of the brain. But in epileptiform fits, convulsions caused by a lesion or unstable ganglionic area in the motor region, consciousness may be lost, late in the fit, because of involvement of fibers connecting this portion of the brain with the organ of the mind.

Athetosis from Traumatism.—The *Lancet* for March 22d contains a contribution from Beevon on this subject. The patient, a man aged 27 years, having two years before fallen down a stairway, he was unconscious for ten minutes. On recovery he noticed that he had movements in the right thumb and in the right side of the face. A week later movements commenced in the fingers ; a fortnight later in the elbow and shoulder, and four weeks later in the lower limb, in the order of hip, knee and foot. There was no anæsthesia and no aphasia. At the present time he had partial paralysis of the right side of the face; there was marked athetosis of the right hand, and at times involuntary movement of the elevator of the right upper lip. There was no absolute paralysis of the right upper limb; there were stiffness and slight movements of the right foot; there was no tenderness or pain over the head. The case was important as occurring after injury, and also that the order of invasion corresponded to the arrangement of the different parts on the cortex. He thought the lesion was probably a hæmatoma on the cortical area over the region of the centers of the face and thumb. The movements of athetosis occurring in the face were very unusual. The treatment recommended was trephining over the center for the face and the elevator of the upper lip.

INFANTILE SPINAL PARALYSIS IN RELATION TO THE MOTOR CENTERS OF THE HEMISPHERES.—Dr. Colella has published a most careful study on this question. This paper is illustrated with some beautiful lithographs. The author has carefully studied the literature of the subject, and his *résumés* of what has been done by previous inquirers fill many of his seventy-six pages. At the same time, even granting that this was advisable or necessary, his article seems too long. The case which he himself has observed was a man of fifty-nine years of age, who had suffered from epilepsy from infancy, with paralysis of the right leg, the knee stiff and deformed. He had the violent character common to epileptics, which had brought him into the grasp of the law, and he had passed seventeen years in the galleys for different homicides (*per diversi omicidii*). Coming into the asylum of Naples in 1881, he died of gangrene of the lungs in 1887. The physicians of the asylum had thus plenty of time to make very careful observations and measurements, which are given in much detail. The clinical diagnosis is thus summed up: Epilepsy and post-epileptic dementia, spinal paralysis and infantile atrophy, talipes and varo-equinus with arrest of development, deformity and paralytic contraction of the right leg. In the atrophied limb there was abolition of voluntary movement, disappearance of the deep and superficial reflexes, electrical reaction of the muscles of the leg and feet, but the reaction of degeneration in those of the thigh, and atheromatous degeneration of the aorta. The pathological examination was most carefully made. There was hypertrophy of the left ventricle of the heart, and fatty and calcarous degeneration of the aorta. There were also the usual lesions accompanying gangrene of the lungs, enlargement of the liver and of the spleen, and hyperæmia of the kidneys, with fatty degeneration of the cortical substance.

The brain was found to be well developed and symmetrical. It weighed 1,270 grammes. The right hemisphere was slightly heavier than the left one. The color and consistency of the nerve tissues and vessels appeared to be normal with one exception. There was a deficiency or depression affecting the median convolutions answering to the motor cortical zone of the lower extremities on both sides. The locality is very carefully defined in the text, and indicated on the plates. The brain and cord were hardened in Müller's fluid for microscopical exam-

ination. The parts answering to the motor zone of the leg were found to be atrophied. The atrophy was greater on the left hemisphere than on the right. There was also degenerative atrophy of the muscles of the motor nerves and of the anterior spinal roots of the nervous plexuses of the right leg.

Colella considers that the primary lesion was the degeneration of the lumbar region of the spinal cord. This, on microscopical examination, was found to be due to atrophy of the lateral pyramids of the cord on the right side, and bilateral atrophy of the marginal zone of the lateral columns, in the lumbar portion of the cord. The lesion of the spinal cord was succeeded by wasting of the motor centers of the leg. That this wasting took place on both sides of the brain when only the right leg was affected, he considers to be owing to the movements of the lower extremities being more associated than those of the upper extremities. The motions of the arms are more specialized, and hence they are more completely represented by the opposite side of the brain, while the associated movements of the legs are excited from centers common to each hemisphere. Dr. Colella observes that the motor zone in the cortex does not represent a motor center geometrically circumscribed, but a center of greater functional activity, from which it derives the greater of its motor innervation.

Dr. Colella gives a *résumé* of published cases in which loss or congenital absence of limbs were found, after death, to be accompanied by a deficiency in some corresponding portion of the brain. These instances, though collected from a wide survey of medical literature, are, nevertheless, scanty; and it ought to be borne in mind that a good many negative instances have been noticed, and a few of them have been published—that is to say, instances in which limbs have been wanting from infancy with no marked deficiency of those portions of the brain regarded as corresponding motor areas.—*Cincinnati Lancet-Clinic.*

Spontaneous Hysterical Hypnotism.—"*Novel Manifestations in Hysteria*" is the title of a paper by Dr. J. A. Krieger, of St. Louis, in the *Courier of Medicine* for April, 1890, showing the hypnotic phenomena which so often appear in this singular malady.

The case was that of a strong, healthy-looking schoolgirl of 15. Her father is strong and robust, but her mother

is thin, sallow and decidedly hysterical. The hysterical manifestations had been recurring every six or eight weeks, lasting each time from two to four days. At these times she was violent and tried to choke herself, pull her hair, scratch herself, roll about, violently stiffen out and remain in complete opisthotonus until livid in the face; screamed and fought so vigorously that it often required three or four persons to control her. In May, 1889, her menses, which had been regular for a year past, suddenly ceased. She presented herself at the clinic for nervous diseases, of the St. Louis Post-Graduate School, in Oct., 1889. At that time she was noted to be bright and intelligent, but very willful; cried or smiled readily, evincing great mobility of emotions; complained of aches and pains in various places, constantly shifting about. Presented a peculiar new sensation each day, *e. g.*, of something crawling down the back, of a thread drawn through the abdomen, etc., etc. The hystero-genetic zones were well marked; occiput painful to the touch; supra-orbital region very sensitive; spinal column so exquisitely painful that she cannot wear a corset. With the exception of these points, the entire upper half of the body was anæsthetic and analgesic. Hearing, sight, smell and taste normal. Mother stated that the patient did not pass her urine for three or four days, and when she did urinate, passed only a few ounces, although she drank the usual quantities of water. There was no diarrhea, excessive sweating or urinous odor from the skin. Sp. gr. of urine was 1028; normal in other respects. A close watch was put upon the girl, but it was never discovered that she passed more urine than the mother had stated, so the case was considered to be one of hysterical anuria. Large doses of a diuretic which was given to her produced no effect. The more attention was directed to this curious condition the more marked it became. She was told that it made no difference whether she ever urinated, but that she would surely feel an intense desire to pass her water the next day, which she could not resist. Next day her mother reported that the girl had passed a large quantity of water.

November 11th a "spell" occurred, lasting over an hour; sensibility tested and found to be entirely absent. Patient permitted a large darning needle to be stuck through the biceps and other muscles without wincing—often not even looking to see what was going on; elec-

tric current, stronger than a man could bear, was not complained of. Muscular sense absent; could not tell position of fingers, arms or hand while her eyes were closed.

December 19th an interesting set of experiments were tried. An ordinary magnet was applied to her arm, and she was told firmly that the feeling would return in five minutes. It did gradually return within the specified time. She was told that her feeling would remain until the 21st. She could not return on the 21st, but when next seen, on the 23d, she stated that her arm was all right until 10 o'clock (clinic hour) of the 21st, when it began to feel numb, and finally lost all feeling. Sensibility was restored to the entire right side by going through the maneuvers of "animal magnetists," and ordering her that it should never again lose its sensibility, which has remained up to writing.

Many interesting experiments were made, some upon the special senses.

January 28th patient was told that the next time she returned she would feel splendid all over. February 3rd was in excellent spirits—said she felt "just like the morning star."

NEUROPATHOLOGY.

Lesions of the Spinal Cord.—The *Lancet* of March 8th, commenting on Dr. Bastian's paper, on "Symptoms of Lesions of the Spinal Cord," which was read before the Royal Medical and Chirurgical Society, February 22nd, says that a modification of the current views as to the symptoms of complete transverse lesions of the spinal cord will be necessary after the masterly and convincing paper by Dr. Bastian, who holds that in *complete* lesions of the spinal cord there is *absence* of the knee-jerk and other deep reflexes, and not increased reflexes, as usually taught; also, that there is muscular flaccidity and not rigidity.

In support of his views he cited carefully detailed records of four cases in which there was developed under observation, complete transverse lesion of the spinal cord (due to extensive softenings). Dr. Bastian holds that the reason that exaggerated reflexes are

reported in these cases, is because the transverse destruction of the cord is not complete. Mr. Boulby and Dr. Hughlings-Jackson concurred in Dr. Bastian's opinion. The *Lancet* (February 22nd) publishes a case reported to the Pathological Society of London, in which for twelve months before death, there had been absolute paralysis of motion and sensation, but in which there was muscular rigidity and increased reflexes.

CLINICAL PSYCHIATRY.

CHOREA AMONG THE INSANE.—Dr. Theodore Diller, in the *American Journal of the Medical Sciences*, for April, 1890, discusses this subject at length, and presents 39 cases gathered from 23 hospitals for the insane. He says:

"In 23 hospitals for the insane, distributed over a wide extent of territory and containing a population of 16,499 insane persons, we find there are 39 cases of chorea, of which 16 are males and 23 females. Exclusive of Case XI., where the age is not given, we find the youngest person is 16 years old and the eldest, 72 years. The average age is $43\frac{24}{38}$. The average age of the men is $44\frac{1}{16}$; that of the women, $43\frac{17}{22}$. 29 of the cases are of persons 35 years of age or over, and of these 29 we find 13 are 50 years of age or over. In 14 cases there is a family history of insanity or a tendency to nervous affection, and in 3 of these we find chorea has been directly inherited.

"Among 32 cases, in which the form of insanity is recorded, we find there are 18 cases of dementia, of which 3 are secondary to mania, 5 to melancholia, and 9 to forms of insanity the names of which are not given, and 1 to hemiplegia. 4 are recorded as cases of imbecility; 2 are noted as emotional, childish, and feeble-minded; 2 might be considered cases of post-apoplectic insanity, and 1 as a case of chronic delusional insanity; 2 are cases of mania—1 chronic and 1 acute; 2 are congenital, and 1 is a case of melancholia."

From his study of this group of cases the author draws the following conclusions:

1. There is to be found among the insane in hospitals and asylums in this country, 1 choreic among each 425 of population.

2. In all long-standing cases of chorea there is a more or less marked tendency to mental deterioration, which, in many cases, progressively increases, and finally terminates in dementia.

3. Many cases, even when there exists a considerable degree of mental impairment associated with chorea, enjoy fair physical health and apparently live almost as long as they would have done had they been free from the mental and nervous affections.

4. The proportion of male to female adults is in about the same ratio as is found to exist between the sexes in children affected with acute chorea.

5. The same causes that are known to produce chorea in children are found to operate in causing the disease in adults; but in the case of the latter, additional causes peculiar to adult life, such as apoplexy, anxiety, etc., are capable of producing the disease.

Emotional causes may produce chorea when operating on a person already predisposed to the affection.

A person having a family history of insanity, chorea or epilepsy, or, indeed, any nervous affection, is predisposed to an attack of chorea.

Persons popularly known as "nervous" are especially predisposed to an attack of chorea; but when the disease is noted to exist in phlegmatic robust persons, it is probably the result of rheumatism or coarse brain lesions.

6. Persons of adult years are sometimes, though rarely, attacked with chorea while suffering from rheumatism, the disease being about of the same character as that commonly observed in children, but more likely to become chronic.

7. As to the pathology, the following appear to be reasonable conclusions: (*a*) A number of cases arise from, and are caused directly or remotely, by an attack of rheumatism. (*b*) In the majority of cases, heart disease is absent and there is a negative history as to rheumatism. (*c*) Coarse lesions, acting as irritants to the motor cells of the brain or the tracts proceeding therefrom, are in some cases the prime cause. Such lesions most commonly are clots, recent, organized or broken-down.

8. Chorea is to be found at all ages.

9. Persons may inherit the disease directly.

10. The disease may be congenital.

11. Chorea and epilepsy are intimately related to each other. Epileptic convulsion (Jacksonian) may be confined to a single member; the same is true of choreic convulsions.

THE EVILS OF HYPNOTISM.—Professor Germain Sée, in a recent series of lectures on "Sleep, Insomnia and Somniferous Agents," has called attention to some of the evils which he thinks may be derived from hypnotic practices when employed for therapeutic ends. Hypnotism favors and develops tendencies to hysteria. Hysteria is a disease in which the higher cerebral activities are suspended. Now this is a leading and essential characteristic of the hypnotic state. The Minister of War, in France, in consequence of certain bad results, has forbidden military physicians to resort to hypnotism among the soldiers from fear that hysteria might be prevalent in the army. The same proscription, says Professor Sée, ought, with at least equal force, to apply to the practice of hypnotizing children, who may be made fools are crazy by the constant repetition of such practice. Gilles-de-la-Tourette declares that those that are hysterically predisposed are almost certainly made hysterical by frequent hypnotizing, and as for those already hysterical, if, by chance, one now and then succeeds in curing a paralysis or a contracture, it is only to make the disease locate itself elsewhere, or substitute for the contracture or paralysis a series of fits.—*Therapeutic Gazette.*

LACERATION OF THE RECTUM AND PERINEUM (SELF-INFLICTED) IN AN INSANE EPILEPTIC.—Dr. Moses Collins relates a case of this kind. The patient was an imbecile, age sixteen, who was subject to frequent epileptic attacks. February 5th it was discovered that the patient had inflicted upon himself, with his hands alone, a laceration of the rectum and perineum, extending two inches above and below the normal site of the anal orifice, the wound being two inches in depth.

Ice bags were applied to the parts, and the next day an operation was performed for the repair of the injury. Four deep silver wire sutures were introduced and several superficial silk sutures. The patient did not offer the least resistance to the operation. Sloughing and extensive erysipelatous inflammation ensued, which resulted in a fatal termination.

NAPHTHA DELIRIUM.—The *Archiv. de Neur.* states that in the Boston rubber works, where great numbers of females are employed, they are in a continual state of ebriety from the inhalation of the fumes of the naphtha employed. On being questioned, the girls declared that they had become so habituated to this strange form of intoxication that it was a necessity to them, and that the pleasurable sensations induced excelled those of opium or hashish. The authority for this singular statement is not given.—*Times Register.*

MELANCHOLIA CAUSED BY A MEDICINE.—That a melancholy so profound as to deceive the practiced eye of the physician, and even the patient himself, can be produced by the administration of a chemical substance, is an interesting fact. It is true that vertigo, delirium, etc., can be produced by various drugs, but the drug in question here, mercaptan, has this particular peculiarity even in small doses. It, of course, does not prove that because a drug causes melancholy that all melancholy is caused by the presence of this substance, but in this case the drug is actually present in the lower bowel, as shown by the experiments of Prof. M. Nencki and his brother, who found methyl-mercaptan constantly in the lower bowel.

NEUROTHERAPY.

CHLORIDE OF SODIUM IN THE TREATMENT OF NEURALGIA, ODONTALGIA AND ALLIED NEUROSES.—Mr. George Leslie, in a paper read before the Medico-Chirurgical Society of Edinburgh, which is reported in the January number of the *Edinburgh Medical Journal*, relates some remarkable results obtained by the application of powdered chloride of sodium—common table salt—to the nasal mucous membrane. The salt was used by the patient as a snuff, a pinch being taken into the nostril of the affected side, or else it was applied by means of an insufflator. In his practice, Mr. Leslie used a small insufflator charged with about four grains, which he injected into the nostril while the patient was drawing in air. The operation produced little pain or discomfort.

"The mode of disappearance of the neuralgia is noteworthy. So unattended is it by any form of shock or other unpleasantness, that though the patient may be

suffering from intense pain one minute, and be absolutely free from it the next, it is generally somewhat longer before he can realize his altered condition, and he usually employs a short time in introspection before announcing the favorable result.

"Although a single application usually suffices for the immediate inhibition of neuralgia, especially when it is recent and localized in one branch of the fifth nerve; in other cases, where the disease has been of long-standing and of extensive distribution, I have found that insufflation repeated every half-minute, for about five minutes, was required."

Forty cases of cranial neuralgia and allied diseases where treated by this means with complete success, two or three with partial success, and only two without effect. The author cites, in detail, twenty of his successful cases, which include the following: Cases of supraorbital neuralgia, neuralgia of right temple, odontalgia, facial neuralgia, facial neuralgia with odontalgia, frontal cephalgia, vertical cephalgia, neuralgia following herpes, orbital neuralgia accompanying facial erysipelas, neuralgia accompanying glossitis, cephalgia accompanying tonsillitis and bronchial asthma.

Mr. Leslie thinks it is possible that the treatment may be useful in neuroses other than those here mentioned, *e. g.*, dentition of children. He has made arrangements for observing the effects of the treatment in a large number of epileptics in an institution under his medical care.

We insert the following as a sample of cases related:

Case X.—*Facial Neuralgia.*—Mrs. J., æt. 69. The patient consulted me on September 20th, when she had the symptoms of an acute attack of neuralgia, involving all the branches of the fifth nerve of the left side. There was great tenderness on pressure over the affected area. With treatment there was relief in a few seconds, the pain disappearing first from the ophthalmic division of the nerve. I was assured, November 18th, by a member of this lady's family, that the relief had been permanent.

We cannot help feeling that the author is over-enthusiastic and sanguine in presenting the claims of this simple treatment. We trust, however, that we may find we are mistaken and that the remedy will do all that he claims for it.

Common salt has been used in the treatment of migraine by Rabow, of Berlin (ALIENIST AND NEUROLOGIST, January, 1888), who found that it cut short an attack if given in a half-teaspoonful dose (by mouth) as soon as the premonitory symptoms were noted. Nothnagel noted that similar treatment was of service in epilepsy.

If salt exerts the influence that is claimed for it, it must be because of a peculiar reflex action set up by it.

EXALGINE AS AN ANALGESIC.—Thomas R. Fraser, M. D. (*Brit. M. Jour.*, Feb. 15), has administered exalgine in essential neuralgias, and in pain produced by a number of diseases. Having had no previous personal knowledge of its properties, he generally gave it in the small dose of half a grain; but 1, 2 and 4-grain doses were also administered. The largest quantity given in twenty-four hours was 14 grains, and no disagreeable, much less dangerous, effect was produced by this quantity. His observations were made on twenty-one patients, and in sixteen forms of disease. Eighty-eight separate administrations of exalgine were made. In 67 of them pain was relieved; in 21 no distinct benefit was gained. The condition of some of the patients was not one in which the pain that existed was likely to be removed by any substance that did not produce general narcotism. The best results were obtained in neuralgia, especially "Facial neuralgia" and "Cardiac angina." In 52 administrations, 48 were successful, and only 4 unsuccessful. It appears to be free from the disturbances and inconveniences that are associated with the action of nearly all other pain-subduing agents and from the dangers inseparable from the use of the more powerful of these agents.

NEUROTOXICOLOGY.

RECOVERY OF ABSORBED MORPHINE FROM THE URINE, THE BLOOD AND THE TISSUES.—In the *University Medical Magazine* (Phila.) for May, 1890, Prof. Theodore Wormley gives detailed accounts of his examinations of ten cases for the recovery of absorbed morphine. *Amyl alcohol* was used for the extraction of the alkaloid, Kahlbaum's alcohol being employed.

This is a subject of great interest to students of forensic

medicine, as will appear from Prof. Wormley's historical consideration of the subject:

Of all the ordinary poisons there is none that has more frequently been attended with failure to recover it from the body, both in poisoning of the human subject and in experiments on animals, than the alkaloid morphine. These failures have occurred even when the quantity taken or administered was very large, and all the attending circumstances apparently the most favorable for its recovery. Indeed, in the numerous experiments thus far made upon animals, the results have been negative, save in a few instances.

Dr. Wormley was able to recover morphine from the urine in every instance of five men who accidentally or intentionally took considerable quantities of the drug. In the first five cases—dogs poisoned with the drug—the alkaloid was also recovered almost without exception from all the organs tested for it—the stomach, liver, brain and blood, besides being detected in the urine.

The citation of one of Dr. Wormley's cases will serve to give his method of extracting the drug from the urine:

"CASE V.—A man habituated to the use of morphine in large quantity took daily for some time six grains (0.389 gram) morphine sulphate. While taking this quantity the urine passed December 28th, 1889, during twenty-four hours, measured 440 cc., was about neutral in reaction, and of sp. gr. 1012. For this case I am indebted to my colleague, Professor H. C. Wood.

"220 cc. of the urine, acidulated with acetic acid, were concentrated to 75 cc., rendered alkaline by ammonia and extracted with about two volumes hot amyl alcohol. The residue obtained on the evaporation of the alcohol readily showed the presence of morphine. After further purification the residue, under the action of several tests, indicated the presence of morphine in very marked quantity, the reactions being about as well-marked as with the pure alkaloid, but repeated attempts failed to obtain it in well-defined crystals."

In other cases the defined crystals were obtained.

EDITORIAL.

[*All Unsigned Editorials are written by the Editor.*]

Bob Ingersoll's Biological Blunder.—The recent letter of Col. Robt. G. Ingersoll to Mr. Philip G. Peabody, the Boston philanthropist, denouncing vivisection as "the inquisition, the hell of science," and vivisectionists as "scientific assassins," has certainly not enhanced the reputation of the great agnostic for extensive scientific knowledge nor justified the towering intellectuality he assumes.

Ingersoll asks: "Have these scientific assassins discovered anything of value?" and answers himself thus: "They may have settled some disputes as to the action of some organ, but have they added to the useful knowledge of the race?"

If the reverend iconoclast had read Ferrier's "Functions of the Brain," or acquainted himself with the brilliant results of Victor Horsley and his recent followers, or with the later monographs of Mills, Schaeffer, Bevor or Seguin, he would never have asked this question or dared this last rash criticism of procedures of which he is ignorant, and of a science of which he demonstrably knows nothing.

He does not know that it was because Harvey was not averse to vivisection, and through the aid it had given him in his researches as well as his *post-mortem* dissections and the vivisectional and autopsic dissections of his predecessors, that the observing mind of the great man was led up to the discovery of the circulation of the blood, and that through the anatomical and physiological knowledge thus gained he was enabled to demonstrate it to the world.

And if he ever knew it, he ignores the fact that it was through vivisection that the arteries were found to contain blood, instead of air, as was held up to the time of the discovery of Galen, though they still bear the name given them under the erroneous hypothesis prevailing concerning them before this discovery. Vivisection

has given the world most of the great physiological discoveries and made the names of Bichat and Flourens, Claude Bernard, Brown-Sequard, Morgagni, Monk, Fritz, Hitzig, Ferrier, Foster and Carpenter famous. These men were not the torturing, heartless, brutal kind of men Mr. Ingersoll paints, who investigated only for soulless curiosity, but the searching, calm and careful investigators of the biological laboratory, living and laboring for true love of science only. Through vivisection the functions of the vasomotor nervous system, controlling and influencing circulation in the smaller blood-vessels, and its allied ganglionic system, the great sympathetic, which regulates the functions of organic life, have been demonstrated. Through vivisection the nerves were singled out from the tendons, the functions of the nerves, sensory and motor, discovered, and the local control of pain understood and better accomplished than before. By the infliction of pain on the lower animals, the merciful, but not altogether harmless, hypodermic needle came into use and the benign blessings of anæsthesia. The anodynes that assuage pain, and the animal, vegetable and mineral poisons converted into medicines for the relief of suffering man and animals, have most of them been proved through experimental annoyance and violence to the lower animals. The wondrous prophylaxis of Jenner, whose vaccinations have saved countless lives and prevented untold misery, came about in the same way; likewise, the saving inoculations of Pasteur, lighting with hope and rescuing from despair the trembling victim of hydrophobia.

Vivisection gave to surgery the ligation of arteries and the catgut ligature, and showed the superiority and safety of tying the blood-vessels, over staunching them with the actual cautery or the more barbarous boiling-oil process of primitive surgery for arresting the bleeding of amputated limbs. Vivisection showed us how arteries heal when tied and cut, and how lives are hereby saved.

Biological science holds that it were better a dozen of Mr. Ingersoll's pet dogs should die than that a hundred human beings should perish for want of the necessary rescuing knowledge. Dogs die in the dog pound for no useful purpose. Dogs die of hydrophobia and men die of *them.* Why not let as many dogs die in the laboratory as are necessary to save the race from this scourge? Their slaughter in the biological laboratory has made

Pasteur and his preventive inoculation possible. Mr. Ingersoll's philanthropy would abolish the vaccine farm and the biological laboratory or so cripple them that their saving discoveries and resources would be rendered insignificant. A humanitarian science would rather a few guinea pigs, rats, mice, dogs, birds and rabbits should suffer and perish than that relievable human sufferings should go unrelieved or preventable death averted. Against needless, aimless, cumulative torture, fruitless or unnecessary experiment, science protests in the name of the humanity she serves. Her foremost votaries have ever been the truest and most humane of men, self-sacrificing men, tender of heart, inspired in their arduous tasks by hopes of reward only in benefits to man and the animals that serve him. They have risked their good name and their lives, and sacrificed them, as history abundantly testifies, in numerous illustrious examples, for the welfare of the human race. A Franklin drawing down the lightning from heaven into his own hands, a Hare dying a violent death among his chemicals, a Davy trying his safety lamp in the deadly fire-damp, or a Vesallieus making, under contumely, disgrace and danger, the first human dissection, are familiar illustrations of the scientific self-sacrifice and the humanitarianism of true science. Military annals give account of no greater courage or bravery than is to be found in the lives of men of science; nor are the victories of war more brilliant or valuable. Men offer their own lives that other men may live, and perish for country, for science, for truth and honor. Why should not the dogs suffer and die likewise in a world where suffering is so common and apparently so necessary, that greater good may come of it, moral or physical?

The spirit that leads the true physician to brave the pestilence, to risk the noxious emanations of the dead-house, the septic poisoning of cadaveric examinations, and the biologist to sometimes take similar chances with the noxious germs in his laboratory, justifies him in exacting of the lower animal kingdom, over which man has dominion, a sharing of the sacrifice he makes for the common welfare of man and his fellow creatures. Mankind applauds human self-sacrifice for worthy purposes, and while it justly condemns needlessly cruel and aimless torture of animals, the world will not reproachfully count against science and her glorious achievements the necessary vivisections for her advancement. When rabies, anthrax,

yellow fever and consumption shall cease to spread dismay and decimate the earth the few dogs that shall have suffered will be forgotten, and Mr. Ingersoll's "Scientific Assassins," whose blood-stained hands Mr. Ingersoll's tender heart will not permit him to clasp, will be forgiven by all save the saintly and tender-hearted Agnostic.

If the Rev. Robert should be as fortunate in securing for his mistakes the pardon of mankind and the forgiveness of God, he will have occasion for thankfulness. The mistakes of Ingersoll in regard to science, exceed those he attributes to Moses, with this difference: Moses is dead and cannot reply, but science lives to refute him. Servetus, to whom Mr. Ingersoll refers, was a physician who had the courage to brave the popular prejudice, passion and fury of his times, and to die for his convictions. In his day he was one of the devils of scientific scepticism, just as the biological laboratory is to-day in Mr. Ingersoll's eyes, the inquisition—the hell—of science, and the latter knows about as much of the methods of vivisection and the work of the laboratory as he knows, confessedly, about hell, at *present.*

Science presents such an array and record of discovery through biological investigation, including vivisection, evidently unknown to Mr. Ingersoll, that if he had not been ignorant of them he would have kept silent on the subject and not have asked 'What have they added to the useful knowledge of the race?' He would not have dared to ask the question in view of the triumphs of cerebral localization and the modern surgery of the brain; in view of laparotomy, the suturing of intestines and the cure of hitherto fatal wounds, toxicology and so much of modern therapeutics as has been made possible through vivisection and biological research. Yet he asks: 'Have these scientific assassins discovered anything of value?'

If he were suddenly stricken dumb while reflecting upon his recent bad biological 'break' (a calamity not likely, unfortunately, to happen), and were to fairly investigate the nature of his malady—he might learn that Ferrier's researches on living monkeys helped to prove, and nature, not too kind to wound by disease—to confirm the exact seat and cause of his malady.

The possibilities of modern surgical relief, which as far transcend those of any previous age as printing, steam and electrical appliances do the resources of the past, are in

part, at least, due to the men who braved the laboratory, the dead-house and vivisection tables and their improved scientific methods; not to brutes inhuman, nor fiends in human form, nor fit companions for murderers, thieves and liars, but men, high-minded, kind-hearted, sympathetic men, keenly alive to human misery, who have suffered and sacrificed their comfort, their health, and sometimes their lives to the duty of relieving human suffering through the least possible infliction of pain upon the animals below them in the scale of being. The wanton wounding of animals is never countenanced by them. The biological laboratory with its vivisection table is not the place of perpetual torture pictured by Mr. Ingersoll, for physiologists are human. Humanity abounds in the physiologist's heart, even as it may be found abiding in the cardiac machinery (figuratively speaking) of the divine attorney who so violently assails him.

Monument to Dr. Marion-Sims.—It is announced in the press of the day that the contract has been closed for the casting of a full-length bronze statue of Dr. J. Marion-Sims. It will be nine feet in height and mounted upon a granite pedestal about eight feet high. It will stand in Central Park, New York. St. Louis is about to build a no less enduring monument to the memory of this illustrious name in her new medical school, the Marion-Sims Medical College, which will soon adorn the brow of Compton Hill. This magnificent structure, sixty by something over one hundred feet in front and length, and four stories high, with all modern college equipments, and a learned and able faculty of teachers, is the first school in America to thus honor the memory of this great gynecologist. It will be a living monument, carrying his illustrious name to generations yet to come into the profession. The name is worthy of such a monument and the projectors of the new college are worthy of the name.

Functional Nervous Diseases of Reflex Origin.—A very sensible paper on this subject was read at the late meeting of the A. M. M. A., at Nashville, Tennessee, before the Section of Ophthalmology, by Dr. Baker, on "Functional Nervous Diseases of Reflex Origin," the conclusions of which neurologists will generally indorse. Dr. Baker said:

But it is to be remembered that in all of these cases there is a

neurotic temperament that predisposes these patients to some form of neurotic disease, and the peculiar form the disease may assume is often due to accidental causes. And this is the reason that when you cure these patients of one affection, you are almost sure to have another follow, possibly in a distant organ. And thus it is that the oculist is reaping an abundant harvest from the fields already gleaned by the gynecologist, who has sewed up all the lacerated cervices and repaired all the damaged perinei, until the chastest maiden might envy the comely appearance of the genitalia of the most prolific matron. It may be true that these patients are relieved of side and backaches; it may be that their constipated bowels or irritable bladders perform their functions better; yet these patients still suffer about the usual amount of pain and discomfort in the course of the year, although it may be transferred to the head or eyes.

I am not prepared to say just what this neurotic habit is; but we are all familiar with its manifestations. With one, it will be manifested by recurring attacks of sick headache; in another, by a paroxysm of asthma or hay fever; in the female, by painful menstruation or hysteria, and in others it may manifest itself as neuralgia, chorea or epilepsy. We specialists may lop off a branch here and there, and we may be of real value to our patient in relieving him of some troublesome or painful symptom, but there is something more necessary—the patient needs treatment of more than this or that annoying symptom. Let us, then, not ignore the general practitioner in his more responsible duty of correcting the general condition, which, after all, is the real cause of these nervous diseases of reflex orgin.

Physician Wanted.—Am ſchwarzen Brett der Berliner Univerſität lieſt man augenblicklich einen Anſchlag, daß ein Aſſiſtenzarzt für die Lokal-Irrenanſtalt von St. Getreu in Bamberg geſucht wird. Das Gehalt beträgt 600 Mk. nebſt freier Wohnung und Verpflegung erſter Klaſſe; dazu kommt noch ein — Biergeldbezug von 160 Mark.

On the bulletin-board of the University of Berlin, a notice was lately to be seen announcing that an assistant-physician was needed at the St. Getreu Hospital for the Insane, Bamberg, Bavaria, and offering for his annual services six hundred marks, first-class board and lodging, *and a beer-allowance of one hundred and sixty marks.*

Traumatic Tetanus Cured by Profuse Sweating.—Apropos of jaborandi in tetanus the following account from *L'Union Médicale*, of twenty-one years ago, may seem to throw some light on the salutary effects of diaphoritic medicines in tetanus:

L'Union Medicale contains the report of two cases of traumatic tetanus cured by profuse sweating induced by the gradual slacking of

quick-lime under the bed clothes, the process being kept up by replacing the lime as occasions required. In both cases the disease was cured in five days, but in one, the trismus, which was the last symptom to disappear in both, lasted until the tenth day.—*Medical Archives*, Jan., 1869.

Right and Left-Handedness.—A great many explanations and anatomical conjectures have been made to account for the prevailing right-handedness in the human family, but the fact is mainly due, we think, to the accidental fact that the mother generally lies on her right side after her confinement to receive and suckle the infant, thus confining its left arm against her breast, leaving only the right side perfectly free, so that the earliest and most facile voluntary movements of its limbs take place in the right upper extremity. Ambidexterity is not difficult of accomplishment to properly trained children, and it is the common trait of apes and monkeys, while dogs and other quadrupeds seem to use any limb with equal facility, and can be trained to use one fore limb in preference to another for certain movements, as mankind is accustomed to.

Diarrheas Among the Insane.—Dr. Harriet C. B. Alexander, of Chicago (*Medical Standard*) says that the intestinal disorders of the insane resemble those of children in symptomatology and fatality. There is much less gastric disturbance in the insane, but the diarrhea exhibits a greater tendency to become dysenteric. One type is an enterocolitis, which exhibits a rapid tendency to become a bloody dysentery. At the outset vomiting, soon followed by tenesmus, is apt to occur. At times these diarrheas of the insane are complicated by a species of membranous enteritis, accompanied by the expulsion of casts. These are expelled paroxysmally, and the paroxysm is often preceded by rigors, blueness of the extremities and symptoms of collapse. Pain and tenesmus accompany the expulsion. The casts are usually opaque, white objects, easily rolled out into somewhat translucent membrane. The passage of the casts occurs most frequently in old cases of insanity. Dr. Alexander has had the best results from the following treatment: She gives at the outset a teaspoonful of a mixture of equal parts of aromatic syrup of rhubarb and syrup of ginger. This is followed in an hour by two-grain doses of cerium oxalate,

and in two hours by dram doses hourly of the following mixture:

℞ Ex. fl. coca.
Ex. fl. chamomil āā 3ii ℈ii.
Ex. fl. coto cort.
Ex. fl. rubi rad āā 3vm19.
Spts. vin. gal. 3xxxii.
M. S. 3i omne horu.

Morvan's Disease Illustrated.—*Le Neurelle Icongraphic de la Salpêtrière Clinique des Maladies du Systeme Nerveaux*, published under the direction of M. Charcot and collaborators, contains a number of beautiful illustrations from a clinical stand-point of the disease first described by Morvan in 1883. The characteristic analgesic hemiparalysis and distinctive ulceration of the digital ends of the superior extremities are well-shown together with the scleroderma and muscular atrophy and eye symptoms. The article is by George Guinon, Chief of the Clinique for Nervous Diseases, *et Ancien interne du Clinique.*

Morvan's first case was published in *Gazette Hebdomadaire.* Jürgensen has lately described a case in the *Berliner Klinische Wochenschrift*, and Charcot has presented the subject in *Le Progres Medical.* The subject has lately editorially engaged the attention of the *British Medical Journal*, which presents it as follows:

It appears that the chief features of the disease are, first, pain in the fingers, and then paralysis with wasting of the muscles, first of the hand and subsequently of the fore-arm; the pain passes away, and is succeeded by anæsthesia and analgesia, then indolent abscesses appear scattered about on the hand and fore-arm. The last stage is necrosis and sloughing of the bones and soft parts, especially of the hand. The temperature of the affected parts is low. The disease begins sometimes in one hand, sometimes in the other, but it always soon becomes symmetrical in the hands and fore-arms. It is extremely slow in its progress. Some of the patients have remained under observation for twenty years. No means of arresting its progress is known. It has to be distinguished from Reynaud's disease, from that form of scleroderma which affects the hands symmetrically, and from leprosy, but the diagnosis from all these is easy. Morvan's disease, however, much resembles the condition produced by some forms of syringomyelia, and the resemblance is the more close because cavities in the spinal cord are much more frequently in the cervical region than elsewhere. In syringomyelia the muscular atrophy is more marked and more extensive than in Morvan's disease. The disturbances of sensibility are more widely distributed in the former, but all are not equally lost, for the the patient may feel pain but cannot distinguish between hot and cold

objects; and, lastly, in syringomyelia any trophic disturbance may occur; the presence of abscesses is accidental, but it is characteristic of Morvan's disease.

X. **Internationaler Medizinischer Congress zu Berlin**, 1890. Bureau, Berlin, N. W., Karlstr. 10.—Um den aus allen civilisirten Ländern der Welt zum 10. internationalen medizinischen Congress hier zusammentreffenden Aerzten und medizinischen Gelehrten die Gelegenheit zum Einblick in die periodische Fachliteratur zu verschaffen, haben Unterzeichnete es unternommen, ein Journal-Lesezimmer zu allgemeinem Gebrauch für die Mitglieder des Congresses einzurichten. Wir hoffen, daß auch ihr geschätztes Organ uns bei dieser Veranstaltung nicht fehlen wird und bitten, den laufenden Jahrgang 1890, einschließlich der bis zum Ablieferungstermin (25. Juli) erschienenen letzten Nummer, zu diesem genannten Zwecke an das Bureau des Congresses einsenden zu wollen. S. Guttmann, Villaret, Würzburg. Alle Antworten bitten wir dem General-Sekretär Herrn Dr. Lassar, Karlstraße 19, mit der Bezeichnung Gruppe 12, einzusenden.

Ophthalmo-Psychic Strabismus.—The profession is scarcely recovered from the diagnostic errors of recanting gynecology, atoning for its past wrongs to helpless woman through mistaken neurological counterfeits of gynesiac disease confessed, which never should have been called special female disease, and is not yet free from the violence done in the name of surgery in some particulars before it is violently assaulted from another quarter. This time it is an ophthalmological craze, a oppsychical aberration, discerning, with mental hyperopic astigmatic vision, the nervous affections of the organism as oculo-neural reflexes.

No sooner does a local specialist make an important new discovery or enlarge upon an old one than his enthusiasm colors it as all-important, and locates the origin and cause of more disease than is entitled in reason and observation to be so placed in the one *locus morbi*. Not content with the circumscribed facts and their general influence, an omnipotent influence is claimed and the balance of the organism is ignored. The genito-urinary reflexes, the anal reflexes, the gastric and intestinal, the aural reflexes and the laryngeal reflexes, have had their day as sole causes of general nervous disease. Now we are to have the reflex ocular neuroses. As a patient who has just departed expresses it (and who is no better for his treatment), we are now to have our eyes trimmed for everything.

There are henceforth to be but few general nervous diseases, but oculo-neural diseases chiefly. Typho-neurotic

disorder may shorten muscles, but shortened and unequal eye muscles, leading to errors of accommodation, are to have a cause peculiar to themselves and make the nervous disease and its diathesis.

In addition to the claims of Dr. Stevens, upon which the New York Neurological Society has reported, we have in last number of the *American Journal of the Medical Sciences*, the following "neuropathic" claims made by Dr. Geo. M. Gould, of clinical illustrations of reflex ocular neuroses:

Stammering, due to hyperopia; Peculiar paralysis, anæsthesia, etc.; Chorea of two years' duration, due to hyperopic astigmatism; Functional gastric disturbances; Aphonia, with other nervous disturbances due to compound hyperopic astigmatism and insufficiency.

Sundry (other) neuroses, including dizziness, vertigo, etc.

Gentlemen neurologists, your occupation's gone. There are no diseases of the nervous system. Those affections which you have mistakenly regarded as such are diseases of the muscles and globe of the eye and errors of refraction and of accommodation—*oculo*-neural disease.

True, the committee of the Neurological Society appointed to inquire into the subject still found epilepsy and chorea to persist after the correction of ocular defects; "but the bias of prejudice" overbalanced their judgments, and Dr. Stevens will attend to them and their cases. He will remove all ocular defects in choreic children, see that they are taken out of school, get general nerve rest and mental relaxation and opportunity for neuro-recovery as well as eye treatment, and they will of course improve.

Dr. Stevens has devised a valuable therapeutic resource for relieving one of the many local sources of general neural irritation, but has not perfected an operative device for remedying that constitutional neuropathia which makes ocular defects a possibility, or oculo-neural irritation a factor in the maintenance or prolongation of general nervous disease, even functional; and while the operative *technique* and the discovery as perfected by Dr. Stevens, are worthy of scientific applause, the glory of the procedure is likely to be much obscured by the unscientific proposals and attempts of Dr. Stevens to treat grave general nervous diseases, even though apparently only functional, without appropriate concomitant medication. There is a place for the Stevens procedure in the legitimate thera-

peusis of the neuroses, but it will not displace all other neurotherapy. We hope for the sake of our common glory that while America has the honor of a new relief device it will not bring with it the disgrace of cleterodectomy and the other exaggerated remedial devices from which gynecology is just recovering.

Let the eye muscles be "trimmed," but pare off at the same time the bias of undue enthusiasm. Remember the fate of Baker Brown and how the luster of even Marion Sims' skill was obscured by cutting too often and too rashly. The eye is no more important than the womb as a *locus origo morbi.*

Psychical (probably Neurotrophic) Motor Aphasia in a Child. – A curious example of a peculiar form of aphasic seizure in the person of a little boy aged five and a half, has recently fallen under our observation.

When asked a question he replies after a muscular effort, such as pulling finger of opposite hand or his clothing, or rubbing finger along the table, or starting out to walk and sliding his feet as he puts them on the floor, always starting with the right foot. He was asked, "What do you like to eat?" to which he answered (after pulling at clothing), "ā—a—a—a—apples." He can sing and whistle familiar airs without embarrassment; can never say "I" promptly or directly, *e. g.*, as a prelude he says, "Fi—fe—fo—I do," or "Of course," or "Yes, I do." He can answer, after some hesitancy like this and violently pulling at finger or clothing or pushing finger along the table, or walking in a sliding manner over the floor.

He sleeps well—always has. Previous to institution of treatment, often got up at night (about 11 P. M.) and walked about while asleep. This would occur two or three times a week. Never had a convulsion of any sort, even while teething. Had swollen eyelids when twenty-three months old, lasting six months. He was naturally a bright, quick-minded boy—a fluent talker for his age before becoming affected, using exceptionally choice language and forming good sentences. He is a brave, heroic little fellow, submitting to physical discomfort or even pain without wincing, but easily cries from emotional causes. Sometimes wakes in the night crying. A sister was also subject to night terrors. His hesitancy in speech was first noticed a year and a half ago. He has no pain anywhere. The mother states that about the time he first began to be affected

the boy saw and often conversed with a milkman who was a great stutterer. The lad has always been in good health, never having had any of the fevers of childhood.

June 16. The following tests were made, to elicit the child's manner of talking:

Question.—"How do you like warm weather?"

Answer.—(After twenty seconds' pause, during which time he was engaged in muscular efforts) "I—I—don't like it."

Q. "What kind of weather do you like?"

A. (After fifteen seconds) "I like it when it is cold and snow is on the ground," always making a muscular effort of some kind. "I saw sleighs once." (This was said of his own volition and with only one or two seconds' hesitation after slight muscular effort.)

Q. "What kind of cars do you like to ride on?"

A. (After thirty seconds of unusual effort) "Cable cars."

Q. "Would you like to be dressed like this all summer?"

A. (After ten seconds and usual muscular effort) "I wouldn't like it."

Q. "Did you sleep well last night?"

A. (After six seconds' muscular effort) "I did."

Q. "Which do you like better, a horse or a mule?"

A. (After ten seconds' usual muscular effort) "I like a pony."

Q. "What do you like best for dinner?"

A. (After ten seconds' and the usual muscular effort) "Only syrup."

Questions which can be answered by a simple affirmative or negative he answers by nods or shakes of the head usually. There is a good deal less pause and muscular effort in talking of his own volition than in speaking only in reply to questions; *e. g.*, it took him only twenty-five seconds to utter three short sentences of his own volition. Another time to say a sentence of a dozen words, ten seconds.

June 19. He was asked some questions while walking up and down the room, holding the interrogator's hand. Replied to these questions in ten, three and five seconds respectively.

The boy was in good spirits and spoke a good deal of his own will. In walking up and down the room he usually made a long striding movement with his foot preliminary to

answering questions. This movement was quick and vigorous, much like the movement of rubbing finger along the the table, before referred to.

July 6. The child is under treatment, and has improved some. A subsequent report will be made.

The case is chiefly remarkable—First, From the age of the patient; Second, From the fact that a motor effort seems always necessary to secure to the child and always accomplish the power of speech. An excitation of the psycho-motor area of the leg or arm of right side seems always to bring into adequate activity and power the speech center located below.

The case being still under study a fuller explanation of the singular phenomena will not now be attempted.

X. International Medical Congress, Berlin, 1890.—*Regulations and Programme.*—The Tenth International Medical Congress will be opened in Berlin on Monday, August 4th, 1890, and will be closed on Saturday, August 9th. The Congress shall consist of legally qualified medical men who have inscribed themselves as members, and have paid for their card of membership. Other men of science who interest themselves in the work of the Congress may be admitted as extraordinary members. Those who take part in the Congress shall pay a subscription of 20 marks (one Pound sterling or $5) on being enrolled as members. For this sum they shall receive a copy of the Transactions as soon as they appear. The enrollment shall take place at the beginning of the Congress. Gentlemen may, however, be enrolled as members by sending the amount of the subscription to the treasurer, with their name, professional status and residence appended. The object of the Congress is an exclusively scientific one. The work of the Congress will be discharged by eighteen different sections. The members shall declare upon enrollment to which section or sections they intend more particularly to attach themselves. The Committee of Organization shall, at the opening sitting of the Congress, suggest the election of a definite committee (or bureau) which shall consist of a President, three Vice-Presidents, and of a number—as yet undetermined—of Honorary Presidents and Secretaries.

The general meetings shall be devoted to

(*a.*) Transactions connected with the work and general management of the Congress.

(*b.*) Speeches and communications of general interest.

Addresses in the general sittings, as well as in any extraordinary meetings which may be determined upon, can only be given by those who have been specially requested by the Committee of Organization. In the sittings of the sections, questions and problems will be discussed, which have been agreed upon by the Special Committee of Organization. The Communications of those appointed by the committee to report on a subject, shall form the basis of discussion. As far as time allows, other communications or proposals, proceeding from members and sanctioned by the Committee of Organization, may also be introduced for discussion. The bureau of each section decides as to the acceptance of such offered communications, and as to the order in which they shall come before the meeting, always provided that this point has not been already determined in the sitting itself by a decree of the section. Scientific questions shall not be put to the vote. Introductory addresses in the sections must, as a rule, not exceed twenty minutes in length. In the discussions no more than ten minutes are allowed to each speaker. All addresses and papers in the general and sectional meetings must be handed over to the secretaries, in writing, before the end of the sitting. The Editorial Committee shall decide whether—and to what extent—these written contributions shall be included in the printed Transactions of the Congress. The members who have taken part in the discussions will be requested to hand over to the secretaries, before the end of the day, in writing, the substance of their remarks. The official languages of all the sittings shall be German, English and French. The Regulations, the Programme and the Agenda for the day, will be printed in all three languages. It will, however, be allowable to make use of other languages than the above for brief remarks, always provided that one of the members present is ready to translate the gist of such remarks into one of the official languages. The acting president shall conduct the business of each meeting according to the parliamentary rules generally accepted in deliberative assemblies. Medical students, and other persons, ladies and gentlemen, who are not physicians, but who take a special interest in the work of a particular sitting, may be invited by the President, or be allowed to attend the sitting by special

permission. Communications or inquiries regarding the business of separate sections, must be addressed to the managing members thereof. All other communications and inquiries must be directed to the General Secretary, Dr. Lassar, Berlin, NW., 19 Karlstrasse

Flagrant Abuses Requiring Correction—Proprietary *vs.* Legitimate Pharmacy.—Under this caption Dr. Wellington Adams has vigorously attacked a widely prevailing and rapidly increasing system of abuse of our trade-mark and copyright laws in their application to that class of articles known as "proprietary medicines." Dr. Adams urges the profession to seek a revision of these laws, and in the meantime to so frown down, by the weight of social influence and patronage, all journals that open their advertising pages to the promotion of proprietary medicines, as to prevent the insertion of such advertisements. He would boycott them. In conclusion he says:

Should this villainous scheme continue, there is no telling what the future may bring forth. We may at least rest assured that all progress will be seriously hampered, mischievous monopolies will be created, and the name for every new article will be protected by trade-mark, the process and apparatus for preparing the article will be patented, and the physician's therapeutical armamentarium will be needlessly glutted with trade-mark names. Suppose manufacturers had availed themselves of this method before, what an immense advantage and monopoly the first manufacturers of cocaine would have had! Again, fancy the dastardly injury to humanity the discoverer of quinine would have had the power to inflict!

Contrast these methods with the action of Scheffer in publishing free to the world his great discovery in the simplification of the manufacture and improvement of pepsin, and with the action of others in the introduction of cascara sagrada, grindelia robusta, and other new medicines upon which no protection has been sought. Let us, then, as a body, for our own protection, the progress of science, and the benefit of humanity, seek to effect a revision of these pernicious laws; and in the meantime, let us religiously refrain from supporting those journals which make a practice of catering to this particular class of advertisements; and furthermore, let us as far as possible eschew the use of these protected articles, and also all the unprotected drugs manufactured by firms which are known to make a practice of trade-marking compounds and new drugs.

While not subscribing *in toto* to all the author's propositions, we think the subject one for thoughtful consideration—that abuses are connected with it demanding attention.

Preparation of Brains for Demonstrations and for Reference and Study.—We would recommend to physicians who are interested in the study of the brain and its diseases, to prepare for themselves a specimen in one of the two ways which we will describe. A brain prepared by either method may be kept in library or office, and can be handled at any time as a papier-maché or wax model would be, as it is entirely free from odor, and does not soil the fingers. Various colored paints can be used to designate the anatomical divisions or the localized functions. If not more than one brain is prepared, it is better that it should be divided into halves by cutting down through the great longitudinal fissure. Then on one side of the frontal parietal, spheno-temporal and occipital lobes can be indicated by as many colored paints, while on the other half the various localized functions, centers, leg, arm, face, speech, hearing, etc., may be designated.

First Method.—After carefully removing the membranes and vessels, place the brain in a strong solution of chloride of zinc. Allow to remain there ten or fifteen days, then place it in absolute alcohol, where it should remain ten days. Next, transfer to a vessel containing glycerine, where it must be kept for about ten days. When taken from the glycerine it should be dried in an oven, or in the sunlight, long enough to remove the excess of glycerine. In the vessels containing the various liquids should be placed a considerable quantity of cotton, so that the convex surface of the brain may not be flattened by coming in contact with a hard, unyielding surface. In drying the specimen it is well to guard against this accident, also, by suspending the brain in a small improvised hammock.

Second Method (Dr. J. W. Blackburn's) is as follows: The brain is carefully hardened in Müller or Erlicki's solution, which preserves its size and shape as perfectly as possible. After hardening about five weeks in Muller's, or a shorter time in Erlicki's fluid, the specimen is removed, washed, placed in dilute alcohol, and gradually advanced through alcohols of increasing strength, until absolute alcohol is used. When thoroughly dehydrated by the absolute alcohol, it is placed in a saturated solution of Japan wax in chloroform, and allowed to remain until the alcohol is displaced by the chloroformic solution. The brain is then transferred to a bath of melted wax and kept in it at the boil-

ing point until thoroughly infiltrated. When the infiltration is completed, the specimen is removed, the wax drains from the surface, leaving it smooth, and when cool it may be varnished, and then painted or lettered if desirable.

If the wax cannot be kept melted continuously, it is better to lift out the specimen and replace it in the chloroformic bath, as the wax has a tendency to crack if cooled in large masses. The cracking may to some extent be prevented by mixing paraffin with the wax. As to the time required for the different steps of the process, much will depend upon the size and character of the specimen, but after thorough dehydration, a hemisphere should be allowed to remain at least three days in each bath. The doctor says that specimens thus prepared are more durable than wax models.

The second method has the advantage over the first, in that the specimen retains its normal size. By the first method there is some shrinkage, but as this is uniform the relation of the various parts is, of course, preserved. We believe that specimens can be preserved with less difficulty by the first method. T. D.

The Effect of Mental Impression by Way of Illustrating Cerebral Localization.—Dr. Andrew H. Smith, in the July number of the *American Journal of the Medical Sciences*, relates a highly interesting case which affords much food for thought.

The patient, three years ago, suffered from a tremor of the right wrist and hand, somewhat resembling writers' cramp, together with a good deal of occipital pain. Properly selected glasses relieved the headache and improved the condition of the hand. The patient continued in this very fair condition of health until a few days ago, when he became interested in reading the article in *Harper's Magazine*, for May, in which Mr. Chittenden describes his experience in signing, as Register of the Treasury, 12,500 United States Bonds in sixty-four hours, and the physical distress which the effort occasioned. As he read this he experienced a severe pain, beginning in the right hand, running up the arm and neck and then into the occiput, and at last settling with great intensity in a circumscribed spot on the left side of the head. In describing the pain, the patient placed his finger in the exact situation of the wrist and hand center for the other side, as located by Ferrier.

The author concludes that there was a morbid condition of the cortical center; that the attention of the mind toward the function of that center resulted in the expression of pain through the intermediate link of a vasomotor disturbance.

To us this case appears valuable, as throwing some light upon epilepsy and other allied unstable conditions of the cerebral cortex. We believe that epileptic fits may be sometimes produced in persons who have unstable areas in the cerebral cortex, by various expedients, as excessive attention to self, pursuit of tedious and perplexing occupations which call for unusual exercise of these areas. Just what pathological condition exists which makes these areas unstable yet remains to be determined. Whether it is a vasomotor paresis or other disturbance is only, as yet, a matter of conjecture. T. D.

Retirement of Dr. Hays.—Dr. J. Minis Hays, who has so ably conducted the *American Journal of the Medical Sciences* for more than twenty-one years, walking in the footsteps of his illustrious father, who founded the great medical enterprise, has severed his connection with this *Journal.* Dr. E. P. Davis, who succeeds Dr. Hays, brings to his work a ripe experience, and we doubt not that under him the high character of this publication will be continued in the future as it has been in the past.

Dr. W. S. Whitwell and the San Mateo County Supervisors.—The San Mateo (California) county supervisors require any person caring for patients suffering from insanity or inebriety within the county, to surround his premises with a wall *eight feet in height* and to *maintain a guard at the entrance.* This was directed against Dr. W. S. Whitwell, who had removed his private hospital to San Mateo. In May last Dr. Whitwell was arrested and tried at San Mateo, found guilty and fined fifty dollars. Upon refusing to pay the same, was remanded to the custody of the sheriff. A writ of habeas corpus was issued, returnable before a judge of San Francisco. The case, though not yet decided, is of general interest to the medical profession and of especial interest to private institutions for the insane.

This is progressing backwards in the care and treatment of the insane. Another Pinel will have to rise up on the Pacific slope and teach humanity to the San Mateo county supervisors the insane have rights, and they are not all wild beasts, that they should be thus corraled.

The American Neurological Association held its sixteenth annual meeting at the hall of the College of Physicians, Philadelphia, Penn., on June 4th, 5th and 6th, 1890. Dr. E. C. Spitzka, of New York, President. The scientific communications embraced papers by

Dr. S. Weir Mitchell and C. H. Burr, of Philadelphia: On Spinal Chorea. Dr. J. J. Putnam, of Boston: On Cases of Postero-Lateral Sclerosis, with Specimens; Reported with Special Reference to the Pathology of the Disease. Dr. C. L. Dana, of New York: On Anterior Myelomalacia, with Specimens. Dr. G. M. Hammond, of New York: On the Pathological Finding in the Original Case on which Dr. W. A. Hammond's Description of Athetosis was Based.

Dr. G. L. Walton, of Boston: On a Contribution to the Study of the Traumatic Neuro-Psychosis. Dr. F. X. Dercum, of Philadelphia: On a Lesion of the Pulvinar, with Special Reference to Wernicke's Pupil Reaction. Dr. N. E. Brill, of New York: On Partial Fracture of the Cervical Spine of twenty-two years' standing; a contribution to the physiology of the cord. Dr. F. Peterson, of New York: On Association of Locomotor Ataxia with Complete Nuclear Ophthalmoplegia and Muscular Atrophies.

Dr. Philip Coombs Knapp, of Boston: On Brain Surgery in Relation to the Localization of Cortical Sensory Centers. Dr. J. J. Putnam, of Boston: On a report on a Large Number of Cases of Multiple Neuritis, Occurring Among Sea-faring Men in Northern Latitudes. Dr. C. L. Dana, of New York: On Ingravescent Apoplexy. Dr. B G. Wilder, of Ithaca: 1st, On Demonstration of the Brain of Professor Chauncey Dwight. (In connection with which the brains of other distinguished scientists will be exhibited.) 2nd, The Brain of a Chimpanzie. (In connection with which the brains of other anthropoid apes will be shown.) Dr. James Hendrie Lloyd, of Philadelphia: Diphtheretic Paralysis, with Special Reference to Treatment.

Drs. F. X. Dercum and F. W. White, of Philadelphia: On a Case of Paraplegia, etc., Relieved by Trephining the Upper Dorsal Vertebral Arches. Dr. B. Sachs, of New York: 1st, On Tumor of the Quadrigeminal Region, with Special Reference to the Occular Symptoms. 2nd, Crus Lesion. Dr. E. C. Spitzka, of New York: On a Limited Focal Lesion of the Pons, with Associated Eye-Movement Paralysis. Dr. C. K. Mills, of Philadelphia: On Some Sources of Error in Trephining.

Dr. H. M. Bannister, of Kankakee: On Focal Hemorrhagic Lesion of the Anterior Cerebellar Crus (Tegmenta Brachium or "Bindearm"). Dr. B. Sachs, of New York: On a Preliminary Report on the Brains and Spinal Cords of Two Cases of Paralysis Agitans. Dr. Wharton Sinkler, of Philadelphia: On a Case of Insular Sclerosis in which an Attack of Cerebral Hemorrhage Arrested the Tremor on the Hemiplegic Side. Dr. Irving Ross, of Washington: On Clinical Evidence of the Borderland of Insanity.

Dr. S. G. Webber, of Boston: On Hysteria and Hystro-Epilepsy Treated by Hypnotism. Dr. William N. Bulland, of Boston: On

Diffuse Cortical Sclerosis of the Brain in Children. Dr. Henry S. Upson, of Cleveland: **On a Third Paper on Gold Chlorides as a Staining Agent for Nerve Tissue.** Dr. J. F. Eskridge, of Denver: **On Acute Myelitis with Optic Nerve Atrophy.**

The most of these papers were read by the authors in person or by proxy.

They serve to show the widespread interest in a department of medicine which with difficulty secured a hearing a few decades ago, and indicate how great has been the progress of neurology within the past decade and a half. Verily "the stone which the builders rejected has become the head of the corner," and the neural pathology is becoming foremost in medical thought.

Association of Superintendents.—The meeting of the Association of Superintendents of American Hospitals for the Insane, at Buffalo, in June, was a profitable one to the specialty, we are informed, and regret that no account of the proceedings has been sent us for this issue of the Alienist.

The Result of the Burning of Longue Pointe Asylum, says the *Montreal Medical Journal*, is that nearly one hundred persons—mostly women—lost their lives in the dreadful holocaust, besides the sequent deaths from consequent injury, exposure, etc.

Dr. A. N. Witmer of the Government Hospital for the Insane has taken his departure for Europe and the International Congress, to be gone four months. The October number will contain a paper from his pen.

Protection of the Insane Against Fire.—In view of the frightful loss of life from the burning of asylums at Montreal, Canada, and Utica, N. Y., the Committee of Charities of the Massachusetts Assembly has framed a bill requiring iron fire-escapes to be constructed on the outside of all asylums for the insane throughout the State.

Here is a field in which the energies of Dr. Hiram Corson, of Pennsylvania might prove more effective and conducive to the welfare of the insane, than that of his recent efforts. This is a subject which an outsider might without special knowledge, understand much more readily than that of the proper care and treatment of the insane; a subject, which, since the days of Pinel and Esquirol, and before then, has been properly relegated by common professional consent to alienist physicians.

CORRESPONDENCE.

Bevan Lewis' Book on Mental Diseases.

St. Louis, June 15th, 1890.

To the Editor of the Alienist and Neurologist:

Sir:—It occurred to the writer that some remarks on Bevan Lewis' Book which were "Extra-editorial," might be of some interest. In this spirit I venture to offer a few thoughts and suggestions.

In the preface Dr. Lewis states his object in writing this book to be "to present a *résumé* of our knowledge of the structure and connections of the cerebro-spinal nervous system, of the architecture of the cerebral hemispheres, and more especially of the cortical envelope as the essential organ of the mind—*the material substratum*—and to add a concise account of the morbid changes found in the brain of the insane, as viewed in the light of recent research." The fact that a disproportionate amount of attention is accorded to clinical aspects of insanity, to the exclusion of the pathological findings, is decried. In short, he aims to give the anatomy of the normal brain, together with the changes from the normal, which, so far as is known at the present time, produce insanity.

The work is divided into three sections, the *Anatomical*, *Clinical* and *Pathological*. The first and the last of these sections are illustrated by a number of beautiful steel engravings showing the normal and pathological histology of the brain. There are also a large number of excellent woodcuts. The drawings have, we believe, been executed by the author himself. A number of statistical tables, the compiling of which involved expenditure of much labor, are introduced.

The book is gotten up by the publishers, Messrs. P. Blakiston, Son & Co., of Philadelphia, in neat, attractive style, but we think that the type used in the text should have been a little larger and bolder. We cannot see the utility of printing certain names in the text in large heavy type. It is done, we presume, to emphasize those words or impress them upon the mind more forcibly. We doubt whether it serves this purpose, but it makes the page present, in some places where these names are numerous, the unpleasant appearance of an advertisement sheet.

The *anatomical* section occupies the first 115 pages, and is discussed in chapters headed as follows: Spinal Cord, Medulla Oblongata, Mesencephalon, Thalamencephalon, Prosencephalon, Encephalon as a Whole, Cerebral Cortex and Cortical Lamination. The author gives abundant evidence that he has an accurate knowledge of microscopical and naked-eye appearances of the brain, but his descriptions often are complex when they could be simple. The whole section is written on the supposition that the reader already has a fair knowledge of the anatomy of the cerebro-spinal axis. A medical student would not be able to follow the descriptions often. The subject is plunged into at once by a description of the "Spinal Cord." But in the first part of this chapter the author gives a little general description of the cerebro-spinal axis as a whole. A minute description of the cord is given, but the author does not tell us that it is situated in and protected by the spinal canal.

The chapter on Cortical Lamination is of special interest. The cortex, the organ of the mind itself, has received careful analysis. At best, this is a difficult subject to describe in a lucid manner, and it is to be greatly regretted that Dr. Lewis, who is a master of the subject, has not given us a clearer description.

The *clinical* section occupies 326 pages, and is considered in chapters on States of Depression, Stupor, Exaltation, Fulminating Psychoses, Mental Enfeeblement, Recurrent and Epileptic Insanity, General Paralysis of the Insane and Alcoholic Insanity. Again, in this section, the author plunges into his subject without preliminary remarks on insanity in general, preface or introduction of any sort. To illustrate, he begins by defining mental depression and starts the chapter thus: "Painful mental states are, of course, normal under certain conditions in health and sanity." Even though the author does presume that all his readers are not only graduates in medcine but also students in psychiatry, we think he makes a serious mistake in omitting a general discussion of insanity, and the definition and discussion of various terms like illusion hallucination, delusion, etc. The division of the subject as well as the consideration of them is peculiar to the author. Again, we must criticise the style in which much of this section is written. The descriptions are too vague, indefinite; there is no approach to word-painting. The author pays much

attention to the mind as a whole, *i. e.*, he lays stress upon the idea that one part is closely related to another and that one part cannot be disturbed or diseased without a proportionate involvement of all. But little attention is paid to the ordinary divisions of insanity, as made by Spitzka, Bucknell and Tuke, Clouston, etc.

The anthor takes the view that "monomania, as a morbid entity, must be regarded as a state evolved *out of* melancholic and maniacal perversions. * * * Monomaniacal states are essentially those where the rise in subject consciousness does not tend to escape in outward action, but rather to find relief in forms of perverted ideation." The reader can judge for himself how far this view accords with the concensus of opinion of the profession. In the consideration of "Recurrence in congenitally defective states," the moral imbecile is recognized and discussed. Katatonia is denied the position of an entity. The author thinks that it is nothing more than a group of the multiple phases of hysteria. The train of symptoms called katatonia, he says, is seen in epileptic insanity and in the alienation of puberty and adolescence. Circular insanity is not discussed as an entity. Typhomania is described under the head of Acute Maniacal Delirium.

The *pathological* section occupies 109 pages. It is to this part of the book that we turn with the most interest. The section is divided into chapters on the following subjects: General Pathology and Morbid Anatomy, Pathological Anatomy of General Paralysis, Pathology of Epilepsy, Pathology of Chronic Alcoholism. For this section we have little to say that is not in praise. We must again refer to the exquisitely executed drawings of the author, so amply illustrating the text of this section, especially. The author's thorough method of autopsic investigation make his findings and deductions in general, reliable and trustworthy. Nearly all that he describes and illustrates is from his own personal observation, and we have as a result, a pathological record of peculiar interest.

The criticism might be made, however, that he failed in the purpose of his book, because he fails after all, in most instances, to show the *clinical* significance of these pathological findings. In other words, he does not show what the particular lesion is in a given mental disease. Bnt he who expects this expects too much. Dr. Lewis

has made a brave beginning towards directing inquiry to and investigation of the "organ of the mind" in diseases. It is a feeling of relief we experience to think that we are beginning to investigate disease of the mind by looking for tangible proofs of disease in the structure and perverted functions of the brain itself.

The intangible and unprofitable method of dealing with psychological problems entirely in an abstract way, ignoring or disregarding the cerebral cortex as "the organ of the mind" cannot much longer obtain. We hail Dr. Lewis' book as a brave and heroic endeavor in the right direction. It will materially aid in fostering the study of mental disease by the natural, rational and logical method, and if it does accomplish this purpose, that alone ought to recompense the author for his arduous labors. But we think he will get, as he deserves, a substantial material reward. Certainly all students of psychological medicine should have this book in their libraries.

THEODORE DILLER.

OFFICE OF THE PRESIDENT OF THE MEDICO-LEGAL SOCIETY OF NEW YORK, NO. 57 BROADWAY, N. Y., March 31st, 1890.

Hon. James G. Blaine, Secretary of State, Washington, D. C.

DEAR SIR:—I have the honor to enclose a circular we are sending in English, French, German and Spanish languages, to the various countries of the world, asking co-operation with the International Medico-Legal Congress, which will be held, in 1892, in this country.

Its first session was held in June, 1889, of which I send the preliminary transactions and roll of delegates.

The French circular enclosed, shows the officers at this moment, and as Vice-Presidents for the various countries are announced, they will be added to those already appointed. Inspection of the names of the eminent men, who have already lent their names to this project, emboldens me to request the countenance of the American Government to this movement in aid of this science.

Among foreign peoples, the knowledge of the approval of the Home Government is of vast consequence to the success of scientific endeavor.

The aid lent by the French Government to the Scientific Congresses in Paris, last year, gave an enormous impetus and importance to that wonderful success which added new luster to the glory of France.

We do not desire any pecuniary assistance from the Government of the United States.

The letters you so kindly sent me last summer were of enormous value to me in interesting eminent men of science in the countries of Europe in the movement.

Such a letter of sympathy with the objects and purposes of our present endeavor, as you can give, will I think, be of great value, and will in many countries, especially the Spanish-speaking countries on this continent, be of commanding importance.

I am, sir, with high personal regard,

Very faithfully yours,

CLARK BELL.

DEPARTMENT OF STATE,
WASHINGTON, April 17th, 1890.

Clark Bell, Esq., President of the Medico-Legal Society, No. 57 Broadway, New York City.

DEAR SIR:—I have received your letter of the 31st ultimo, enclosing copies of circulars which you are sending to the various countries of the world, inviting co-operation for the Congress which will be convened in 1892, in the United States, for the discussion of medical jurisprudence.

The importance of such a gathering as you propose cannot, it would seem, be overestimated. The intelligent discussion of scientific questions, especially those which so closely affect the human family, by a body of gentlemen learned in medico-legal science, must prove of especial value, and should be worthy of every effort which has for its mission the amelioration of the condition of mankind.

My individual sympathy in the objects and purposes of your conference is very great, and I trust that the results of such a meeting as you propose, may correspond to the aims you have in view, as I have no doubt they will.

I am, dear sir, very truly yours,

JAMES G. BLAINE.

CATONSVILLE, BALTIMORE CO.,
May 5th. 1890.

My dear Dr. Hughes:

The April number of ALIENIST came this morning. I read Dr. Kiernan's article on "Mental Relations of Heart Disease" with great interest, but while agreeing in the main with the opinions therein expressed, was surprised to see some very strange statements respecting Matthew Arnold and his family. There is also a singular omission of an important factor in the case of Matthew Arnold, and possibly in that of John Hunter.

"Matthew Arnold came from a well-balanced English family, one of those old English families who have learned to restrain emotion." Perhaps so; but there is no evidence that any member of his family was remarkable before his father. I doubt if any family (English or other nation) have learned to restrain emotion. They may have learned in part to restrain the expression of emotion; quite a different thing.

"His father, the head of the famous school at Rugby, was also a sufferer from cardiac disease." This may be inferred from the fact that he died from heart disease, but during his life there was no suspicion of its existence or suffering on account of it.

"But old Dr. Arnold was very favorably situated. He was in a position to lead a regular, uneventful life. His course of study and course of life were laid out for him and he was held in high esteem by those by whom he was surrounded." This is not true of a larger portion of his life. His life was eventful, a constant struggle against the powers that be for reforms in school, church and state. He was so isolated, on account of his course, from his early friends, that at one period of his life he could only reckon on one real sympathizing friend (Bunsen). It is true that for the last two years of his life all this was changed. After a sharp and tedious contest, success came to him. His school became popular, his literary merits were acknowledged and reform being no longer tabooed, reformers were tolerated and even became fashionable.

"For that reason he died well advanced in years," etc Now, he was born in 1795 and died in 1842, aged forty-seven years. Is forty-seven years of age advanced in

years? If so, Alexander Hamilton and William Pitt were old men!

The expression "old Dr. Arnold," and the general tone of the paragraph would naturally lead to the inference that Matthew Arnold was cut off by his disease at an earlier period than was the rule in the family. Now, Matthew was actually the longest-lived of three generations, thus:

His grandfather, William Arnold, born 1748 and died 1801, aged *fifty-three* years, of *spasm of the heart.*

His father, Thomas Arnold, was born 1795 and died 1842, aged *forty-seven* years, of *angina pectoris.*

Matthew Arnold, born 1822, died 1888, aged *sixty-six* years, of *heart failure.*

Does not this suggest some hereditary transmission of heart weakness? Certainly; an important factor in the case.

In John Hunter's case the remarkable coincidence should be remembered between the ages and circumstance of death of the brothers, William and John.

Wm. Hunter, born 1718, died 1783, aged sixty-five years.

John Hunter, born 1728, died 1793, aged sixty-five years.

Exactly ten years between their births and a like space between their deaths.

William Hunter, subject to gout, experienced "heart troubles," and the "last straw" was fatigue at a lecture he was delivering, which resulted in partial paralysis and ultimately, heart failure.

John Hunter, with for several years attacks of angina pectoris, had an explosion, or attempted to prevent one, and his heart gave way.

The "lecture" in one case, the "provocation" received from his colleagues in the other, happening at the same period of life, produced the untimely results, which might have followed any other trivial exciting cause. In both men was there not some inherited tendency or physical error which was potent for evil?

Excuse my prolixity, but my pen has run away with me.

Yours faithfully,

RICHARD GUNDRY.

To the Editor of the ALIENIST AND NEUROLOGIST:

DEAR SIR:—May I ask for the publicity of your pages to aid me in procuring co-operation in a scientific investigation for which I am responsible? I refer to the *Census of Hallucinations*, which was begun several years ago by the Society for Psychical Research, and of which the International Congress of Experimental Psychology, at Paris, last summer, assumed the future responsibility, naming a committee in each country to carry on the work.

The object of the inquiry is twofold: first, to get a mass of facts about hallucinations which may serve as a basis for a scientific study of these phenomena, and second, to ascertain approximately, the *proportion of persons* who have had such experiences. Until the average frequency of hallucinations in the community is known, it can never be decided whether the so-called "veridical" hallucinations (visions or other "warnings" of the death, etc., of people at a distance) which are so frequently reported, are accidental coincidences or something more.

Some 8,000 or more persons in England, France and the United States have already returned answers to the question which heads the census sheets, and which runs as follows:

Have you ever, when completely awake, had a vivid impression of seeing or being touched by a living being or inanimate object, or of hearing a voice; which impression, so far as you could discover, was not due to any external physical cause?

The Congress hopes that at its next meeting, in England in 1892, as many as 50,000 answers may have been collected. It is obvious that for the purely statistical inquiry, *the answer "No" is as important as the answer "Yes."*

I have been appointed to superintend the census in America, and I most earnestly bespeak the co-operation of any among your readers who may be actively interested in the subject. It is clear that very many volunteer canvassers will be needed to secure success. Each census blank contains instructions to the collector and places for twenty-five names, and special blanks for the "Yes" cases are furnished in addition. I shall be most happy to supply these blanks to anyone who will be good enough to make application for them to

Yours truly,

PROFESSOR WM. JAMES,
Harvard University, Cambridge, Mass.

IN MEMORIAM.

FUNERAL ORATION BY PROFESSOR SALEMI PACE, OF PALERMO, AT THE BURIAL OF GAETANO LA LOGGIA, WHO DIED NOV. 7, 1889, AGED 81 YEARS.—On this mournful occasion permit me, a disciple of the great deceased, in the name of that sanitary body of which he was so long the chief, soul and guide, to say my last sad words.

And if it is now impossible, because of the intense sorrow which afflicts me, to express in words the whole moral value of the merits of the man whom we have lost and whom we deplore, the thought is comforting that history has already allotted one of its most beautiful pages to the glorification of this man, whose whole life was a synthesis of love of country, humanity and science.

His country was the altar on which he sacrificed his whole being, humanity was the object for which he earnestly strove, science received from him a constant worship. And if to all this we add the modest benevolence of a most noble mind, the kindly expression which always irradiated a countenance ever beaming with noble sentiments, and if to these we add a happy faculty of speech, which manifested the purity of his thoughts, there is brought before us one of those grand figures which would find a worthy place among the parallel lives of Plutarch.

Inflamed by the sacred fire of love of country, Gaetano La Loggia sacrificed his fortune, damaged his brilliant medical career, departed from his position as a teacher, many times, through the tyrrany of the period, ascending and descending from the chair. And yet among so many bitter trials, so many deceptions, and amid the pains of exile which he was forced to undergo, he never forgot his country, rather indeed his sacred ideals were strengthened and became impressed still more on his heart, for La Loggia did not resemble the multitude who have their country always on their lips but little in their hearts.

Of all the joys which are permitted to man on earth, the most delightful is probably that of witnessing the triumph of his country, and his country being at last triumphant, La Loggia pre-eminently partook of this joy; nor did he sleep on his acquired laurels.

In fact, to him were intrusted the most important public offices, the duties of which he always discharged with unexampled fidelity, although, sometimes, bitter disappointments fell on him through dishonorable impositions on his own conscious truthfulness. It may well be asserted that from 1860 onward, not a year passed in which La Loggia did not receive from his country, offices and charges which brilliantly proved in what veneration and esteem he was held, and how highly admired was the exemplary purity of his character and intentions.

As he loved his country without any personal ambition, so he loved humanity only that he might benefit it, without seeking either compensation or admiration.

It seemed to have been written expressly for him, that giving is more blessed than receiving, and sowing than reaping, loving than receiving love. He never spoke of his sacrifices for his country, nor proclaimed that benevolence which caused him to pour benefits with a generous hand on the victims of misfortune. How many tears will be shed by those unfortunates to whom his lavishly bestowed and unostentatious aid is now lost forever.

And science weeps no less for the sad departure of one of her most ardent and tireless cultivators. In his youth he shone in many competitions; in adult age, he excited wonder at the bedside of the sick, by those divinations which form the stamp of medical genius that aims rather at restoring the sick than acquiring the fame of a valuable doctrinaire.

In the snatches of time (and they were few) that remained to him from his numerous occupations, he did not abandon writing and publication. I shall speak at the proper time and place of his valuable scientific works. Suffice it, for the present, to say that even in his old age and up to within a few days of his death, he read and meditated on the most modern scientific acquisitions.

But I have not yet spoken of another glory which adorned the noble wreath of the life of La Loggia during his last three lusters. I allude to his labors on behalf of those unfortunates who are bereft of reason.

Having been called, in 1878, to direct our asylum, it is needless to say with what intelligence he entered on the noble office. The new asylum which is in process of erection will attest to posterity the zeal

with which he labored for the amelioration of the condition of so many afflicted ones. Until a few days ago, bowed down by years and enfeebled by the disease which slowly consumed him, he efficaciously used his influence with his illustrious friend, Francesco Crispi, exhorting him to use his official authority to hasten the completion of the new asylum.

But time and sorrow do not now permit me to say more of the noble deceased, to whom, alas! we must now bid an eternal adieu.

Farewell, oh, venerated master! Farewell, most upright and exemplary citizen! Enjoy in the tomb the gratification of him who has been enabled to leave behind so rich an inheritance of love, virtue and knowledge.

Biographical Notes.

He was born December 23, 1808. As a youth he was destined for the army, which, however, he soon abandoned for the study of medicine. When scarcely twenty years of age he obtained his diploma, and was appointed to take the place of the celebrated Fodera, in the chair of Physiology, which he held until 1848. Being of an ardent and generous temperament, he was at the same time devoted to politics, which were then in process of evolution in sects and conspiracies, and at sixteen years of age he was a Carbonaro and afterwards a Freemason.

Involved in all the revolutionary movements, he took an active part in that celebrated one of 1848, on the suppression of which he was compelled to emigrate to Genoa, where he continued to work with other emigrants for the liberation of his country.

Politics, however, did not divert him from his studies, and both at Genoa and Turin he gave lectures in the University as associate professor of biology. At the solicitations of his aged mother he obtained, in 1858, permission to return to his own country, continuing always his revolutionary work, largely taking advantage for this purpose of his influence as a physician.

On the entrance of Garibaldi into Palermo, in 1860, Gaetano La Loggia was among the first to meet him, and was the first who shook his hand on the historic Revolutionary Square.

During the Revolutionary period he held important

offices: he was president of the Committee for the Interior, then Inspector-General of the entire Sanitary Service in Sicily, Commander-in-Chief of the Dictatorial Guards, and finally, Home and Foreign Secretary of State, from which office having withdrawn voluntarily, he was nominated Member of the Extraordinary Council of State of the Prodittatura, and some time after, Member of the Civic Council.

In 1861, he received the appointment of Director of Maritime Health in Sicily, and this office being abolished in 1867, he was without any office or salary whatever. As usual however, he did not neglect his medical studies, and in 1862, he was appointed to the chair of Medical Pathology in the University of Palermo, after which he began the publication of his lectures on Pathology and General Therapeutics. It was only in 1878 that he was able to obtain a scientific office, viz., the charge of the Asylum of Palermo.

To this benevolent institution he consecrated all his activity, and it was through his mediation that the Government ceded to the administration of the Asylum the extensive power over the wine duties.

It is certain that if Gaetano La Loggia had been entirely devoted to science, it would have profited greatly by his teaching and genius. Yet, though politics absorbed so large a part of his time, he has left several valuable works, among which is a learned volume, "*A Physio-Pathological Treatise*" on the Neuroses in General, written in 1875, when he was almost seventy years of age. It is indeed marvelous that at such an age and with so many occupations he still pursued politics.

But patriotism, genius and erudition were not the only qualities of Gaetano La Loggia; he was distinguished also by a goodness of mind and a generosity which were truly grand.

Is it marvelous then that with so many lovely qualities he was so popular in Palermo—of this are a proof the many public offices conferred on him by the votes of the people and the imposing funereal demonstrations which the whole city united to render to him, and with them all in Italy who are lovers of country and of science.

[Translated from *Il Pisani*, of December, 1889, by Miss Susanna J. Boyle, Toronto, Ontario.]

HOSPITAL NOTES.

McLean Asylum for the Insane.—Seventy-second annual report of the superintendent for the year 1889. This admirable asylum is a part of the Massachusetts General Hospital, a private hospital. Both institutions are managed by the same Board of Trustees.

Number of patients at beginning of the year, 166; at the close of year, 174; admissions during the year, 113; whole number treated, 279; recoveries, 33; deaths, 17. The recovered cases resided in the asylum on an average, 5.83 months. The expenses of the asylum during the year were $146,574.09. The cost *per capita*, estimated on the average population (167) being about $877.00 for the year) or about $16.50 a week. There was an income of $10,500.00 from the fund for beneficiaries, the remainder of the revenue being derived from amounts charged to patients.

The "voluntary" cases admitted during the year numbered 42, of whom 11 recovered. Of this system Dr. Cowles says:

"Intelligent patients appreciate the privilege of avoiding a formal examination and the dreaded declaration of insanity; and therefore, with the voluntary system, they seek hospital care earlier and under the helpful influence of the consciousness that it is their own act. The formality required is the signing of a request for 'admission for care and treatment.' There might appear to be an inconsistency, even an impropriety, in the admission of these patients as voluntary who are classed as insane, as above stated. But these conditions often develop or become apparent, upon observation, after admission. These voluntary patients include a more or less doubtful class of cases, for whose commitment, attending physicians would not be willing to certify to insanity, if the patient could not be persuaded to come to the asylum."

Instruction in the gymnasium is under the care of Miss Adams, who teaches both nurses and patients. Baron Nils Posse, M. G., gives the nurses instruction in "medical gymnastics," which qualifies them to practice massage. The success of the ladies' gymnasium has

prompted the starting of a similar place for the men, to which will be attached a commodious smoking and reading room.

A laboratory of pathology and experimental psychology is nearly ready for use. When completed the building will contain an autopsy room, and three rooms for microscopical, photographic and experimental work, besides a small room for chemical examinations.

Dr. Cowles comments on adverse conditions of present asylum surroundings and strongly urges the removal of the buildings to a more favorable locality.

"Good work, with bad construction and unfavorable conditions has commanded the confidence of the public and the support of the asylum. There can be no question as to the better support of a new Asylum, with inviting conditions."

A separate (the seventh) report of the training school for nurses, which has been in successful operation since 1882, is submitted by Dr. Cowles. It is the aim of this school to give instruction in *general nursing*, as well as in special attendance upon the insane. Sixty-four men and women have graduated from the school and been awarded diplomas; nineteen of these remain in the service of the asylum. There are, at present, fifty-four pupils under training. By arrangements with the Boston Training School of the Massachusetts General Hospital, the female graduates of the Asylum School can enter that school, and receive its diploma after a year's study. The Asylum School receives the Boston Training School graduates in like manner.

The "Pathological Report" is made by Dr. W. W. Gannetty, who at present has this work under his charge. Interesting notes are recorded of the findings, macroscopical and microscopical, in two cases of dementia; one of general paresis and one of melancholia.

The medical staff of the asylum consists of a superintendent, three assistant physicians (one of whom is pathologist and three medical house pupils). T. D.

Cleveland Asylum for the Insane. — Thirty-fifth annual report of the Board of Trustees and officers for the fiscal year, 1889.

Number of patients at the beginning of the year, 624; at the close of the year, 675; admitted during the year, 256; recoveries, 95; percentage of death on number

under treatment, 4.09. The cost *per capita*, of keeping patients during the year was $169.91; $3.25 per week.

New buildings to replace those destroyed by fire in October, 1887, are in process of construction. A new amusement hall building is about completed. A new boiler-house, steam-heating apparatus and laundry are in successful operation.

The superintendent, Dr. Jamin Strong, considers somewhat at length in his report, the "Diagnosis of Insanity," "Feigned Insanity" and "Emotional Insanity." T. D.

Illinois State Board of Health.—The tenth annual report, for the year 1887, is, owing to the complications that existed in the state printing contract during the years 1887-88, only now issued. The official register of physicians and midwives, which is included in the report, is, however, made to come up to January 1st, 1890. The report shows a vast amount of work accomplished by this active and intelligent Board.

The indefatigable secretary, Dr. J. H. Rauch, who has worked so faithfully to collect and classify information concerning medical education in this country and Canada, publishes in this report a number of statistical tables giving certain points of information about the various medical colleges. The excellent "Medical Practice" law went into force in 1877. The number of physicians in practice in the State at that time was 7,400. January 1st, 1890, the number registered and entitled to practice, under the law, was 6,215; a decrease of 1,185, notwithstanding a large increase in the population of the State during those thirteen years, probably amounting to 500,000. In 1877, more than half of those engaged in practice were non-graduates; on January 1st, 1890, less than one-tenth of the practitioners were of this class. The graduates or licentiates of 230 graduating or licensing bodies are represented, 151 of these being from bodies in the United States.

Careful detailed reports concerning the public health and a "roster of surgeons connected with Illinois regiments during the Rebellion," are some of the other interesting features of the report.

Western Pennsylvania Hospital.—Insane Department, Dixmont.—Report for the year 1889. Number of patients in house at beginning of the year, 636; remaining

at close of year, 704; admitted during the year, 270; 64 recoveries and 59 deaths are recorded.

The superintendent, Dr. Hutchinson, regrets that so few autopsies are permitted, but no opportunities are lost when the consent of friends is obtained.

A new building, known as the annex, was opened for the reception of patients, December 9th, 1889, and is now occupied by 145 male patients.

No changes in the medical staff have occurred during the year.

GOVERNMENT HOSPITAL FOR THE INSANE, WASHINGTON, D. C.—Report of the superintendent for the year ending July 1st, 1889. Number of patients at beginning of the year, 1,361; at the close of the year, 1,397; admitted during the year, 280. Of those remaining at the close of the year, 637 were from the Army, 58 from the Navy, 16 fromthe Marine Hospital Service, and 650 from civil life. 63 patients belong to the convict and criminal class (including military prisoners). This class is quartered in a separate building, Howard Hall, which was recently opened. There were 114 deaths during the year, 8.30 per cent. of the average population. There were 70 recoveries. The forms of insanity observed in 7,511 patients admitted number 14. In this number of patients 11 were found to be "not insane;" 191 are rated as cases of paresis, of which 176 were men and 15 women, a proportion of one man to $11\frac{11}{15}$ women. Only 2 cases of typhomania were noted. 436 cases of dipsomania are recorded. Mania, melancholia and dementia, as we would naturally expect, comprise the great majority of the whole number.

The hospital, with its 1400 patients, has barely 200 acres of available land for farming, gardening and grazing purposes. Dr. Godding asks for $10,000.00 for the purchase of additional land, believing that the concensus of opinion among alienists is that hospital grounds should be so large that there shall be an acre of land for each patient.

Dr. Chas. H. Latimer, of Maryland, has been appointed to the night medical service, to fill the vacancy caused by the resignation of Dr. Kenney. Dr. Godding commends the plan of night medical service in institutions as large as the Government Hospital. This officer is on duty every night, having during that time the

entire medical care of all patients in the hospital. He makes "rounds" at stated hours during the night, looks after patients specially designated by the physicians on day duty, receives reports from the night watches, advises and assists them. By this plan the hospital is under immediate and prompt medical supervision during the entire twenty-four hours. (A similar service is in vogue in the Ward's Island, N. Y., Asylum.)

The work of the dentist, Dr. Calver, is commended. Dr. Calver's report shows that during the year, 100. patients have had teeth filled (385 separate fillings).

The medical staff of the hospital is made up as follows: W. W. Godding, superintendent, and the following assistants, their seniority being in the order named: Drs. A. H. Witmer, M. J. Stack, A. C. Patterson, J. C. Simpson, I. W. Blackburn, C. H. Latimer.

As a "Pathological Supplement" to the superintendent's report, the special pathologist, Dr. I. W. Blackburn, makes a "Report of *post-mortem* examinations in twenty-nine cases of mental disease." The examinations made were upon fifteen cases of general paralysis, three of acute organic dementia, eight of acute mania, three of acute insanity, with maniacal symptoms, dependent upon organic brain disease. In all instances the naked eye and microscopical appearances are noted in a methodical and painstaking manner, the descriptions of appearances being singularly clear and free from ambiguity and "glittering generality." We have only space to give to our readers the summary of Dr. Blackburn's study of these cases:

In the foregoing study the number of cases of each form of mental disease is too small to form the basis of any general conclusions. The work was undertaken rather as a study of individual cases, grouping together those with somewhat similar clinical manifestations. For this reason, three cases of acute organic dementia with paralytic symptoms have been placed with the cases of general paralysis, and three cases of acute insanity with maniacal symptoms, dependent upon organic cerebral disease have been studied with the cases of acute mania. It was hoped that some additional interest might be secured by this comparative method of study, especially in regard to the two main groups.

In the study of a number of cases of a disease with a well-defined morbid anatomy, repetition is unavoidable; but it was thought that minor differences would be of sufficient interest to make this permissible.

In all the cases of general paralysis characteristic gross lesions

were found. Of the less common conditions, slight abnormality of the skull was found in several cases; adhesions of dura mater to the bone in four, and inflammation of its internal surface of various degrees in five cases.

The pia mater and arachnoid showed changes in all the cases; but in order to preserve the brain better for microscopical study, the membranes were never entirely removed; therefore, reference to the adhesion or non-adhesion of the membranes applies only to the portion examined.

The heaviest brain of the paretic cases weighed 47½ ounces; the lightest, 30 ounces. The average weight of the fifteen cases was 41 9-10 ounces.

The few lesions found in the cases of acute mania were mainly evidences of cerebral irritation and vascular disturbances. As several of these cases were without history, the known causes of such conditions may be considered. Intemperance, sunstroke and syphilis probably leave their traces upon the brain, but as yet, these are indefinite and not well studied.

The heaviest brain of the eight cases of acute mania weighed 56 ounces; the lightest weighed 37½ ounces; the average weight was 46½ ounces, a much greater average than in the cases of paresis.

The cases of organic dementia and mania require no special mention.

As a rule, the microscopical appearances have been recorded without comment, but with the recognition of disputed points in cerebral pathology; and knowing that the greatest care is requisite to avoid accidental changes in the tissues during their preparation for the microscope, the writer has personally conducted every step of the process.

The tissues were, as a rule, stained in bulk before cutting the sections, and when prepared by the usual interstitial imbedding methods and fixed to the slide before removing the imbedding material, it is believed that the least possible displacement of the elements is secured.

The various preparations of carmine have been found to be the most useful staining agents.

The writer had the pleasure of visiting the laboratory last September, and found it the veritable workshop of a busy worker. He was kindly shown by Dr. Blackburn much of his method of working, and many of his admirable drawings, some of which are recognized reproduced in Dr. Blackburn's report. T. D.

Boston Lunatic Hospital.—Superintendent's fifty-first annual report for the year 1839. This hospital has been in operation just a half-century. The superintendent, Dr. Theo. Fisher, takes occasion, in view of this fact, to review briefly the principal points of historical interest concerning the hospital since its beginning.

A curious and interesting fact in this history is the continuous residence in the hospital of a patient from 1839 to 1888, forty-nine years. We would say that this single fact speaks volumes for the excellent character of the management of the institution of which Dr. Fisher is the head. There are three other patients in the hospital who have resided there forty, thirty-eight and thirty-four years, respectively.

Dr. Fisher served as assistant physician from 1863 until 1869. In 1881 he was appointed to the superintendency and has served in that capacity continuously up to the present time.

From the general statistics of the year we glean the following: Number of patients in hospital at beginning of the year, 178; at close of the year, same number, 178; patients at the "Retreat," December 31st, 1889, 126; percentage of recoveries on admissions, 25.5.

In the 141 cases admitted 20 forms of insanity were represented: 20 being cases of senile insanity; 18, acute mania; 15, paranoia; 13, general paralysis; 12, acute melancholia; 12, hebephrenia. Intemperance and heredity were supposed to have been the causes of insanity in 25 of these cases, 13 being attributed to the first named cause and 12 to the last. All the remaining forms of insanity were represented by less than ten cases. T. D.

A Reading-Room at the Berlin Congress.— As elsewhere announced from the Committee, there will be a reading-room in connection with the Tenth International Congress at Berlin. This is a good idea and a new one. The ALIENIST AND NEUROLOGIST will be found there.

Reviews, Book Notices, Etc.

Johns Hopkins Hospital Reports. Post-febrile Insanity—Five Cases. By Prof. Wm. Osler.

Raynaud's Disease. By Dr. H. M. Thomas.—The January and February numbers of the *Johns Hopkins Hospital Reports* (Volume II., Nos. 1 and 2) are before us. The Reports are gotten up in pamphlet or magazine style, printed on thick paper and in large bold print. Both numbers together contain 128 pages. It is the purpose of the hospital authorities to issue during the year similar fasciculi, so that, at the end of the year, a volume of about 500 pages will have been issued.

The first number contains a paper, by Prof. Osler, on "Cases of Post-febrile Insanity." Dr. Osler regards this as a rare condition, having, in his immense hospital experience in Montreal, Philadelphia and Baltimore, seen but two cases up to the year 1888. He regards these cases in medical practice as the counterpart of the insanity seen by surgeons after operations, and of the commoner puerperal insanity encountered by obstetricians. Prof. Osler gives the clinical reports of five cases of post-febrile insanity, all of which occurred within the past eighteen months. The following is a condensed report of these cases:

Case I.—A farmer, age 42, good family history. Severe attack of pneumonia in March, 1889, was followed by a slow convalescence (six weeks). About two weeks after convalescence he began to be melancholic, imagined he had lost respect of friends, etc., etc. On September 21st, was improving, but still had hallucinations.

Case II.—Mary J., age 28. Sister died of phthisis. No mental troubles in family. Was prostrated with typhoid fever in January, 1889. While the fever was on the decline, temperature not being above 101, patient began to be maniacal, talking chiefly on religious subjects; full of delusions. Excitement increased; was with great difficulty kept in bed. Rarely slept except under the influence of hyoscin. Removed to Pennsylvania Hospital for Insane, where she remained three months, when she returned home, sound in mind but weak in body. In September, died of what was said to be an ulceration of the bowels.

Case III.—Richard F., age 30. An attack of typhoid of moderate severity. Developed delusions of various kinds during latter part of fever course. These remained during convalescence and for about a month afterwards. There was no maniacal excitement. Mental instability gradually disappeared with the return of physical strength.

Case IV.—Henry C. P., age 14; fair intelligence. Taken sick with typhoid fever in December, 1888. Fever of moderate severity; head symptoms from the outset; did not know his mother; thought she was dead. Mental symptoms persisted for four weeks after the temperature

had fallen to normal. Was thought to have been a little "queer" until May, 1889, when it was believed he had fully recovered.

Case V.—Thomas D., age 39. Admitted to Philadelphia Hospital, December 29, 1888. Had been drinking heavily for a month past, a week of which covered the beginning of his fever-typhoid. The fever was severe. During convalescence he showed marked mental disturbance; was suspicious; had many delusions. At times, was violent and had to be watched night and day. Violent, maniacal condition lasted about a month, when he began to improve both mentally and physically, until June, when he appeared quite well.

Dr. Osler concludes, from his experience in the seven cases which he has seen, that the prognosis in post-febrile insanity is good, and for this reason, thinks these cases should be kept at home when at all possible. In maniacal cases, such as Case II., this may not be possible, except among the better classes. "Seclusion, incessant watchfulness, absolute rest in bed, with massage and careful feeding, constitute the essentials in treatment."

Altogether, Prof. Osler's contribution is valuable. Insanity following fevers is but meagerly dwelt upon, or passed over altogether, by most systematic writers upon mental diseases. It would be of interest to have more detailed records of cases found in asylums. We venture to say that most large hospitals for the insane will afford some examples of this mental condition.

As to the treatment of these cases we must take issue with Dr. Osler on a few points. Regular and systematic administration of good strong nutriment we regard as a *sine quæ non*. This means that the nasal tube will often be called into requisition. For this reason we believe that for many cases the asylum is the best place because the ordinary practitioner is seldom acquainted with this method of administering nourishment, and besides this, the operation itself would be regarded by friends as most distressing. By the word "seclusion," we presume Dr. Osler means confinement to the home, that the word is not used in the way the asylum officer uses it, *i. e.*, to mean solitary confinement to a single room.

We fear that Dr. Osler does not fully realize the situation when he recommends "absolute rest in bed" for these patients. Certainly in most cases this would not be possible, and in some cases it would hardly be desirable if it were possible. To be sure, a patient might be held in bed by attendants, but he would waste more force in his struggles than if he were permitted to wander about the ward. An attempt should be made to induce sleep by artificial means when there is wakefulness.

It is probable that the cases found in asylums are of considerably longer duration than those related by Dr. Osler, because some of the cases in our asylums have been brought there only after home treatment has failed.

In the second number of the *Reports* Dr. H. M. Thomas records a case of Raynaud's disease, the interesting features of which were sym-

metrical local gangrene of the ears; attacks of local asphyxia of the ears; with superficial loss of substance, for three winters in succession. Local syncope of hands and feet. Epileptiform seizures, followed by hæmoglobinuria, occurring in winter. T. D.

APHASIA, OR LOSS OF SPEECH, AND THE LOCALIZATION OF THE FACULTY OF ARTICULATE LANGUAGE. By Frederick Bateman, M. D. Second Edition greatly enlarged. London: J. & A. Churchill; Jarrold & Sons, 3, Paternoster Buildings.

This book is a second and greatly enlarged edition of a treatise published some years since. When the book first appeared it met with a most favorable reception, both at home and abroad, the edition having been rapidly exhausted. Since that time, the author's attention has been constantly directed to the study of Aphasia and the Localization of the Faculty of Speech, and he has endeavored to bring the work up to the present state of our knowledge of the intricate subject of which it treats; so much fresh matter has been added as to constitute it rather a new work than a revised edition of a former one.

The first three chapters are devoted to a review of the works of other writers in all parts of the world.

The fourth chapter contains the author's own clinical experience. Under the title of Puerperal Aphasia, the case of a lady is described whose vocabulary was limited to one phrase. Although unable to speak, she understood all that was said to her, and to every question, whatever it might be, she invariably said, "The other day." On being asked what she had for her breakfast, she replied, "The other day." A case described as Epileptic Logoneurosis is given at considerable length. Here the loss of speech was of an intermittent character, and there was complete suspension of the faculty of articulate language for periods varying from a few hours to six weeks. During this entire deprivation of the power of speech, the patient was able to describe all his symptoms in writing and also by dactylology, as it happened that both he and the resident pupil understood the deaf and dumb alphabet, and thus held conversation with each other. In this case, the idea was present, the words were not wanting, but articulation was not at the service of the words, and the patient was totally unable to accomplish the physico-psychical act of the expression of thought, by which the latter is converted into articulate language.

Chapter V. is one of special interest to the general reader, and to the student of linguistic science, containing as it does a complete analysis of the Faculty of Language, with a condensed account of the views of Max Muller, Whitney, Parchappe, and other eminent philologists.

The author treats of the different forms or types of language, articulate speech not being the only mode of the expression of thought; the language of Nature, in contradistinction to acquired or artificial language, is considered at great length under the various heads of the Natural Language of the Voice, of the Physiognomy, and of Gesture; the author's views being illustrated by copious quotations from Euripides, Cicero, Shakespeare and Corneille. The employment of gesture language as the sole means of communication with certain monastic

orders is mentioned, and quotations are given from Lucian, Œlianus and Macrobius, to show that the professional Mimes of Greece and Rome especially excelled in this mode of expression. The chapter closes with a comparison of the speech mechanism to a telegraphic apparatus.

Chapters VI. and VII. treat of the different forms in which disturbance of speech shows itself. A section is also devoted to Agraphia, or the loss of the faculty of Written Language. A case of Mirror-writing (Spiegel-Schrift) is recorded, where the patient wrote from left to right, the normal position of the letters being reversed.

The varieties of Sensory Aphasia, known as Word-blindness and Word-deafness, are considered at great length, with especial reference to the Psychology of Sight and Hearing, and the cerebral operations that follow impressions on the eye and on the ear. The latest researches on the visual and auditory centers are given in detail, with the conflicting results of Ferrier, Schäfer and other modern experimentalists.

The causes, diagnosis, prognosis, and treatment of loss or impairment of speech, are then considered. The Jurisprudence of Aphasia forms the subject of an entirely new chapter, in which the author considers the capacity of speechless persons to make a will, or to manage their affairs generally. The question of the civil and criminal responsibility of speechless persons, whether deaf mutes or otherwise, is a subject of capital importance to the medical jurist.

In the last two chapters the different theories of the localization of the faculty of speech are criticised, and tested by the evidence contained in the previous pages; and allusion to the Psychology of the ancients, to the Phrenological system of Gall, and to the craniological researches of Barnard, Davis, Broca and Flower, the author concludes with a reference to the Histology, Physiology and Chemistry of the brain, so far as these subjects have a bearing upon the question of the loss or impairment of the faculty of speech.

This is a valuable contribution to the history and literature of the subject, a subject not yet too old to have lost its interest to either professional or lay reader.

We say this much without agreeing to the author's conclusions, for he is an iconoclast as to what has been thus far built of the speech center, and a sceptic as to the precise localization of a speech center in the brain of man, joining with Maudsley in denying the existence of a speech faculty.

No library of the literature of Aphasia, however, would be complete without this book. The above short analysis of the work clearly shows its scope, and while it is not so replete in recent observations and does not differentiate so much as some other authors, we still commend it. The author is elaborate without complexity.

Insanity After Acute Surgical or Medical Affections.—Prof. H. C. Wood, in a paper read before the College of Physicians of Philadelphia, reports five cases coming under the above head. Dr. Wood holds that the *evidence* or *symptoms* of brain disease may vary greatly in the same brain lesion. He believes that although insanity following acute disease varies greatly in its symptomatology, that in almost all of

the cases there is one common fundamental brain condition, and that this fundamental brain condition bears no specific relation to the disease which has produced it, but may be the outcome of an altered nutrition produced by an exanthematous disease, like typhoid fever, or by a diathetic disease, like rheumatism, or by an accidental traumatism, or by a surgical operation. So he reasons we must classify at least half a dozen insanities if we believe that each insanity in this class has a specific and definite relation to the poison of the disease which it has followed. This he believes would be irrational, for two reasons:

1. The symptoms develop *after* the specific action of the particular poison upon the nervous organism has exhausted itself, *i. e.*, during convalescence.

2. These insanities occur after diseases or affections in which there is no known specific poison, as childbirth, traumatism, surgical operation, etc.

So Dr. Wood holds that the essential lesion in these insanities is an exhaustion and impaired nutrition of the nerve centers.

Discussing the *symptomatology* the author maintains that "though the cases vary very much in their details, the general scope of the symptoms and the general course of the disorders are identical." These insanities would, as a rule, come under the head of and be described as stuporous insanity (primary curable dementia) or confusional insanity (*Wahnsinn*, "Mania Hallucinatoria"). Krafft-Ebing states that these two conditions clinically grade into one another. Dr. Wood himself believes "that these two so-called diseases are merely diverse manifestations of one and the same pathological condition and should be considered as one disease." On the strength of this opinion, he proposes the name *Confusional Insanity* for the entire group.

The prognosis he states is good, recovery almost invariably taking place. "If mental recovery be not complete, the result is lack of mental power, but never so-called partial reasoning insanity never a state resembling that of paranoia."

As to treatment, the question of placing the patient in an asylum will depend entirely upon his pecuniary resources Nothing can be done in the asylum which cannot as well be done at home, if there be provided plenty of trained nurses who attentively look after the patient, to see that he is warmly clad and gets nourishment sufficient in kind and quantity. Artificial feeding will at times be required. As to drugs to be employed, tonics and hypnotics will be useful.

The cases which Dr. Wood cites are briefly as follows:

Case I —Mrs. S., age 30; delivered of second child, January 3rd, 1888. January 29th, became depressed and apathetic; next day was distinctly maniacal. Condition varied between apathy and mild maniacal excitement until April, when she was thought to have recovered her previous mental and physical health.

Case II.—Woman, age 73, became delirious two weeks after a cancer had been removed from her breast. There was one spell of great excitement. Mental enfeeblement was pronounced.

Case III.—Mrs. C. L., age 42; Emmet's operation for rupture of the perineum performed September 8, 1889. On 29th, she was much depressed and worried, and declared three people were in bed with her; refused food; expressed fear of friends; had many delusions of fear. October 20th, patient pronounced well.

Case IV.—Railroad officer, age 50; typhoid fever. On twenty-sixth day of the disease (temperature 99) maniacal symptoms developed. These became more pronounced, so that great care had to be exercised to prevent him jumping out window, etc. Temperature usually subnormal; afterwards went into condition of complete imbecility; talked incoherently. Mental equilibrium restored suddenly—over night—after the insanity had existed six or seven weeks.

Case V.—Woman, age 45. Became insane, due to excessive worry over a near relative who was about dying. Loss of sleep, moderate emotional excitement, memory poor, delusions prevalent, not constant, great confusion in speech, *e. g.*, "Good-morning, Doctor—are you Doctor Jones of Minneapolis?—Yes—No—Did you get my letter? I wrote. Doctor Pepper of Minneapolis; know you—yes—I—I—I—I know you—wrote you a letter," etc., etc.

Maine Insane Hospital.—Reports of trustees, resident officers and the visiting committee of this hospital, bound in one volume, are before us. The daily average of patients in this hospital during the year has been 578.76. The number at the beginning of the year was 578 and at the close only 2 more, 580. 225 were admitted during the year, making the whole number under treatment during the year, 803; 428 men and 375 women. The per cent. of recoveries, based upon the number under treatment, is 8.09. There have been 16 deaths.

The hospital during the early part of the year was visited by a severe epidemic of diphtheria. 27 attendants and patients being attacked of which 4 succumbed (1 attendant and 3 patients.)

The erection of two additional pavilions with connecting corridors and tramways has been begun, the Legislature having appropriated $100,000 for this purpose.

Dr. Geo. D. Rowe, of Oakland, Maine. has been appointed as fourth assistant physician.

State Lunatic Asylum at Trenton.—Annual reports of the officers and managers. At the beginning of the year the number of patients in the hospital was 761. 168 were received during the year and at the close of the year, the hospital contained 778. There were 68 deaths, the cause of 3 of these being typho-mania. The per centage of death rate being 7.0. The percentage of recoveries based upon the whole number admitted during the year was 34.0.

A new building just completed has been recently occupied

Northampton Lunatic Hospital.—Thirty-fourth annual report for year ending September 30th, 1889. Number of patients in hospital at the beginning of the year, 481; at the end of the year, 446; admitted

during the year, 155. The decrease in number of patients is accounted for by the fact that 20 were transferred to Worcester and 19 were boarded out in families Overcrowding is feared and additional accommodations are asked for.

The ratio of recoveries to the number of patients admitted was 24.38 per cent. The number of deaths during the year was 25, being 4 per cent. of the whole number of cases treated.

Drs. Edw. B Lane and David G. Hall, first and second physicians, resigned their posts and were succeeded by Drs. J. A. Houston and Chas. M. Holmes. The hospital has upon its staff one female physician, Dr. Emily F. Wells.

List of Superintendents of the different hospitals for the insane in the United States and Canada, and of those assistant physicians in these institutions who have been in the continuous service for five years, has been compiled by the Secretary of the Association, Dr. John Curwen, Warren, Pennsylvania. We have no doubt but it will be of convenience to many.

The Oxford Retreat, located in Ohio, thirty-nine miles from Cincinnati, through its Superintendent, Dr. G. F. Cook, puts forth its seventh annual report. The retreat is a private institution for the treatment of insanity, nervous disorders, alcoholic inebriety and the opium habit. The main building has a picturesque situation and is surrounded by forty acres of lawn. As will be noticed from the following statistics for the year the population of the Retreat is a moving one. Number of patients at the beginning of the year, 38; at the close of the year, 30; admitted during the year, 51; whole number under treatment during the year, 89, of which 20 were treated for the alcohol habit and 12 for the opium habit.

State Hospital for the Insane at Norristown, Pa.—Tenth Annual Report.—The two departments, one for men and one for women, are kept apart separately and distinctly as far as the medical supervision goes. Dr. Robert H. Chase is resident physician in department for men and Dr. Alice Bennett in the department for women. Each is assisted by two resident physicians of the same sex as the patients. The resident physicians are not superintendents in the way that word is ordinarily used, being entirely relieved of all those business details which ordinarily devolve upon a superintendent. Their duties are entirely medical, so that they can devote all their time to the wards. All business management and details devolve upon the steward and his assistant. The hospital is believed by the managers and by those who advocate women physicians for female patients, to be distinctly in advance of the other hospitals in the State where male physicians are employed entirely. In support of this the ten years' successful running of this hospital under the new plan is pointed to.

From the report of Dr. Chase (Department for Males) we glean the following: Number at beginning of the year, 873: at the close of the year, 923; admitted during the year, 198; whole number under treatment, 1,071; percentage of recoveries on the number admitted, 21 1-5.

During the year, Dr. Chase has caused to be erected in each of the four buildings under his care, watch-boxes, in each of which is placed a watcher, whose duty it is to detect any misconduct or ill-treatment on the part of attendants as well as to counsel and assist them when needed. The plan is unique but has produced severe criticism in some quarters.

Dr. Benett (Department for Women) reports number of patients at the beginning of the year to be 853; at the close of the year, 904 admitted during the year, 219; there were 82 deaths.

Following the reports of the two resident physicians is that of the ophthalmologist, Dr. C. A. Oliver. It deals entirely with the motor ocular apparatus in imbeciles, epileptics and paretic dements in second stage. Dr. Oliver sums up his work and observations during the past four years in this line in the following conclusions:

1st.—In idiopathic epilepsy of the male adult, even where the stage of dementia has been reached, both the intraocular and the extraocular motor groupings, as a rule, seemingly remain unimpaired both as to innervation and to active impulse; the cases of insufficiency present appearing in every instance to be in direct relation with refractive error.

2nd.—In imbecility as seen in the male adult, which has resulted from malformation or disease of the nervous system of a minor degree than that producing so-called idiocy, that have supervened in infancy or occurred before birth, both the intraocular and the extraocular muscle-groupings remain unaffected both as to innervation and to proper action; in fact, they seem to retain their original condition without any pronounced indications of wear and tear; a condition that most probably evidences very little abuse of a delicately-poised muscular apparatus.

3rd.—In the second stage of paresis, as seen in the male, both the intraocular and the extraocular motor-groupings are in all instances more or less paretic, as evidenced by inequalities and irregularities of pupillary areas, peculiarities in iritic movement and loss in ciliary tone and power, as well as by extraocular insufficiencies and ataxic nystagmic motions, all indicative of imperfect muscle innervation and muscle action.

Butler Hospital for the Insane.—Report presented at forty-sixth annual meeting. Number of patients at beginning of year, 157; at the end of the year, 165; admitted during the year, 81.

During the year the second assistant physician, Dr. David H. Sprague, resigned his position as second assistant physician, and was succeeded by A. V. Goss, M. D.

Tablets, with suitable inscriptions, are to be erected to memory of the following benefactors of the Butler Hospital: Alexander Duncan, Nicholas Brown, Robert Hale Ives, Isaac Ray, M. D., LL. D., John Woodbury Sawyer, M. D., and William Benjamin Goldsmith, M. D.

State Asylum for Insane Criminals, Auburn, N. Y.—The thirteenth annual report. Number of patients at beginning of the year, 217; at the end of the year, 219; admitted during the year, 74;

percentage of recoveries on average population, 5.01; on whole number treated, 3.78.

Dr. Carlos F. MacDonald, for more than thirteen years superintendent, has resigned, to become chairman of the State Commission in Lunacy, lately created by the Legislature. The medical staff of the asylum is now made up as follows: Superintendent, H. E. Allison, M. D.; First Assistant Physician, Fred. Sefton, M. D; Second Assistant Physician, John M. Semple, M. D.

Buffalo State Asylum for Insane.—Nineteenth annual report of the managers for the year 1889. Number of patients in the asylum at the beginning of the year, 368; admitted during the year, 293; number remaining at end of year, 403; whole number treated, 661; percentage of recoveries to average population, 23.43; to admissions, 31.; percentage of deaths, 5.3. The largest number of deaths was due to paresis.

The superintendent, Dr. J. B. Andrews, treats a good deal that is new in his admirable report, viz., the commission in lunacy, the proposed new commitment law and the late conferences of managers and superintendents of insane asylums in the State of New York. An organization of these officers similar to that in force in Michigan, was effected and promises to do much good. At these meetings, papers were read by Dr. Carlos F. MacDonald, the medical member of the new board of Commissioners, Dr. J. P. Wise, superintendent of the Willard Asylum, and by Dr. Andrews. The common complaint of over-crowding is made also by Dr. Andrews. A very pleasant feature of the report is the short account which Dr. Andrews gives of his trip to Europe last summer. The trustees granted him three months' leave of absence for rest and recreation. He visited asylums in Paris, in Italy, in Munich, and in England and Scotland.

An entire change in the staff of assistant physicians has taken place during past year. Dr. W. D. Granger resigned the position of assistant physician in February, to engage in private practice. He had held the place from the opening of the asylum. The training school for attendants was largely due to his labors. Dr. Granger, as a writer on psychiatry, is known to a large number of the profession. Dr. Arthur W. Hurd, the second assistant, was promoted to the vacancy occasioned by Dr. Granger's resignation. Drs. Herman G. Matzinger and Percy Bryant were appointed to the posts of second and third assistants respectively.

A Study of Cerebral Palsies of Early Life, Based upon the Analysis of 140 Cases.

This is an elaborate paper, by Drs. B. Sachs and F. Peterson, in the May number of the *Journal of Mental and Nervous Disease*. The authors report their clinical experience with 140 cases of hemiplegia, diplegia and paraplegia, with two autopsies. A number of these cases are related in detail, and several are illustrated by drawings. A table, "showing the age at onset," reveals that 116 of the 140 cases occurred before the fourth year of life. 49 were congenital cases. The existence of Strümpell's polioencephalitis is doubted. The form of paralysis is not the most important factor in diagnosis.

Acquired cases of hemiplegia and diplegia, but particularly the former, are apt to be due to the same causes that prevail in adult apoplexies, viz., hemorrhage, thrombosis or embolism. Meningeal and cortical lesions are more frequent.

Frequent repeated convulsions after onset point with great certainty to cortical lesion.

Cases coming on after acute infectious diseases have been proved to be due to vascular derangement, particularly to hemorrhage and embolism, but some cases may be due to polioencephalitis corticalis; the onset with very high fever makes the latter more probable.

Traumatism is an important factor.

As a prophylactic to these cerebral palsies the obstetrician is warned to hasten protracted labor. The skillful use of the forceps is not so harmful as prolonged compression in the pelvic canal.

The National Magazine of Chicago.—The July number will open with an article entitled "Harvard University and Reform," by Chancellor Harkins, of the National University of Chicago, in which the wisdom of President Eliot's radical recommendations is forcibly maintained. Other timely articles are: "Plan Proposed for a Polytechnic Institute," "Biblical Literature," by Rev. J. C. Quinn, LL. D.; "College Courses for Non-Residents," "Union College Examinations" and "Honorary Degrees." Young men will be interested in the article on the "Chicago Trade Schools." Particulars of the recent gift of twenty-five acres of land near Chicago, worth $25,000, to the National University, and of its proposed new building thereon, are also given in this number. Published at No. 147 Throop Street, Chicago, Ill. Sample copy, 10 cents.

A Communication from Jack the Ripper.—This is a gory burlesque on the too free use of the weapons of the too ready oöphorectomist, suitable for reading in the dog days, to be indulged in only by such as have no fears of nightmare. The hair of the reader will stand upright as he reads the poetry and muses on the direful consequences of oöphorectomic tables turned. The pelvimetric ode recognizes no "riparian rights" in man, "when the female 'med' tartaric has her inning."

Lecture on Sexual Perversion, Satyriasis and Nymphomania, by G. Frank Lydston, M. D., Chicago.

This is a valuable and especially interesting lecture. The accomplished author handles his subject intelligently and forcibly. The author duly estimates the medico-legal significance of his subject and sustains Kiernan's views in regard to the Whitechapel murderer, viz., that he is an insane sexual pervert.

No apology to scientific minds is necessary for the discussion of this subject, which, though not a pleasant one to contemplate, has occupied a larger place in history than it has in medicine, and "is one well worthy the attention of the scientific physician, and is of great importance in its social, medical and legal relations," as the author states.

This *brochure* will prove an interesting sequel to the contributions

of Krafft-Ebing, Hansom, Kiernan and Spitzka. It is not strange that manhood perverted by disease should thus show itself. The chief wonder is that science has been so slow to recognize the fact.

The Four Commencements. Valedictory address to the graduates delivered at the close of the fifty-third session of the Medical Department of the University of Louisville, February 28, 1890. By J. M. Bodine, M. D.

Professional Atmosphere and Morals, or Patents and Secrets *vs.* Liberal Profession. Address delivered before The New York Ontological Society, March 19th, 1889, at New York Academy of Medicine. By Horatio C. Meriam, D. M. D.

Apparent Cancerous Transformation of Syphiloma of the Tongue. Excision of the Tongue by the Galvano-Cautery. By G. Frank Lydston, M. D., Chicago, Ill.

The Inspectories in Use at the Norristown Insane Hospital for the Constant Supervision of Patients and Their Attendants. By J. Howe Adams, M. D.

Flagrant Abuses Requiring Correction—Proprietary *vs.* Legitimate Pharmacy. By Wellington Adams, M. D., Kansas City, Mo.

Acute Mania Following the Enucleation of an Eye. By W. Cheatham, M. D., Louisville, Ky.

A Peculiar Affection of the Neuro-Retinal Circulation. By W. Cheatham, M. D.

The Control and Care of Pauper Inebriates of Towns and Cities. By Lewis D. Mason, M. D.

Pathological Changes in Chronic Alcoholism. By Lewis D. Mason, M. D.

Remarks on Hypertrophy and Atrophy of Tissue By G. Frank Lydston, M. D., Chicago.

The Local Treatment of Syphilitic Phenomena. By G. Frank Lydston, M. D., Chicago.

Hypnotic Suggestion and Its Therapeutic Application in the Treatof Disease. By Benno von Steinmetz, M. D., St. Louis.

A Consideration of Sexual Neurasthenia. By Bransford Lewis, M. D., St. Louis, Mo.

Remarks on the Albuminate of Iron. By John A. Ouchterlony, A. M., M. D.

Stricture of the Rectum; Intestinal Obstruction; Inguinal Colotomy. By Charles B. Kelsey, M. D.

The Blunt Curette in Uterine Hemorrhage. By Thomas W. Kay, M. D., Scranton, Pa.

McLean Asylum Training School for Nurses.—Seventh Annual Report. 1889.

A Practical Splint for Inflammatory Conditions of Joints. By Charles F. Stillman, M. Sc., M. D., Chicago.

A Rational Brace for the Treatment of Caries of the Vertebræ (Pott's Disease). By Charles F. Stillman, M. Sc., M. D., Chicago.

The Treatment of Torticollis (Wry-Neck). By Charles F. Stillman, M. Sc., M. D., Chicago.

The Etiology and Mechanism of Asthma. By William C. Glasgow, M. D.

Electrolysis in the Treatment of Stricture of the Rectum. By Robert Newman, M. D., New York.

Sketch of the Late Dr. J. Edward Turner, the Founder of Inebriate Asylums. By T. D. Crothers, M. D., Hartford, Conn.

Etude Anthropométrique prostituées sur les et les volenses par le Docteur Pauline Carnowsky.

Lymphatiques des organes génitaux de la femme. Par le Dr. L. Poirice.

Compliments of Medical and Chirurgical Faculty of Maryland.

Stories of a Country Doctor. By Willis P. King, M. D.

Multiple Neuritis, By Irving D. Wiltrout, M. D.

Melancholia. By Irving D. Wiltrout, M. D.

An Address Delivered by Dr. Lewis D. Mason.

New York Cancer Hospital.—Fifth Annual Report, 1889.

Tobacco Amblyopia. By Leartus Connor, A. M., M. D.

The Brooklyn Health Exhibition.

The Sewer-Gas Question. By E. S. McClellan, M. D.

THE

Alienist and Neurologist.

VOL. XI. ST. LOUIS, OCTOBER, 1890. No. 3.

ORIGINAL CONTRIBUTIONS.

Neuric and Electric Forces.

(*Concluded.*)

By JOHN SCHILLING, M. D., Millstadt, Illinois.

VOLITION: Spontaneity.—The word "volition," if it means free-will, is another paradox, like the idea of unconsciousness. There is not in reality such a condition as free-will. The idea of a spontaneous action is altogether a mistaken one. There are always external or internal circumstances that cause and influence our actions, and then these are merely reflex. We may not often be able to determine the exact stimuli for every act. Actions may be sometimes apparently quite accidental and spontaneous. Especially does this seem so if the generation of chemical N. is abundant. The currents take, then, one course or the other, under what we have termed the simplest form of reflexion. And, if we use the word "spontaneous" at all, we shall call such processes started by an overflow of chemical N. spontaneous. The currents of chemical N., then, in passing through some nerve-cells, start other currents through other cells, and induce thereby diverse trains of ideas connected together, and actions dependent of or concomitant with these subjective states. Such processes are, however, already very complex reflex-movements. These are, then, really not accidental, but quite necessary results of previously existing conditions

of our organization. For those thoughts which occupy our mind most frequently appear most readily; viz., the nerve-cells and nerve-fibers implicated in these thoughts transmit the respective nervical currents most easily, because of their frequent occurrence.

Habit.—From the same cause of frequent repetition we acquire and possess habits. The nerve-paths, fibers and cells involved in the execution of certain actions have become so conditioned by frequent use as to functionate, whenever a sensation, an original or repeated one, which plays a part in that certain sensory-motor process, takes place, no matter how insignificant it may be occasionally. Accordingly, the oftener an act, mental or muscular (*i. e.*, in which either the mind or muscles predominate), is indulged in, the stronger will be the habit thereof, and consequently more powerful diverting impressions are required in order to overcome the usual conduction of nervical currents. Habits are hard to quit. In the child reflex actions predominate, *i. e.*, stimuli, as touching a limb, excite muscular contractions on the shortest route—through the spinal segments and sympathetic ganglia. It is said the child is unconscious of this, but we know, *a priori*, that the child does feel, only its consciousness is not expressed so intelligently as that of a grown person. The fibers and centers for speech have to be opened, so to speak, and trained by long-continued exercises. In the adult, on the other hand, the nervical currents go up to the brain, to induce by that means more complex or so-called voluntary movements. For other impressions, upon the eye or ear, for instance, occurring at the same time, modify and cause more indirect reflexions—as imitations, forced actions, etc., which are afterwards executed upon one or the other stimulation alone. The oftener an action is repeated—the more perfect the nerve-paths grow—the stronger becomes the habit. And the will (?) can inhibit such strong habits only then if our subjectivity is occupied by other more powerful influences, *i. e.*, if the nerve-fibers are implicated by nerve-

centers in which the nervical state is more intensive and extensive than in the former. And, even then, our will has to be trained habitually by frequent exercises. One habit supplants the other. In this manner the brain inhibits spinal reflex acts, and the resulting movements are now called voluntary.

There is, then, no free-will. Every motion, every action has its stimulus which excites it, and it takes place in just such a way as the arrangement of nerve-centers and fibers necessitates. There is no muscular contraction without a sensory impression, of which, however, we are mostly not conscious, unless we concentrate all, or nearly all other senses upon it—attention or consciousness proper. Even the so-called spontaneous actions are the outcome of chemical processes, and their subjective sides are internal sensory impressions which are quite vague, *a priori*. Of course, the effects of such external or internal stimuli are influenced not only by the predominating sensation, but by all concurring circumstances—as the education, habits, viz., the formation of the nervous connection within the central nervous system in each individual. Let us illustrate this by an example: One looks at an object straight before him. His attention is directed to it, we say, viz., muscular actions keep the axis of his eyes on a line with the object. Suddenly he grows conscious of a change in the field of sight to his left; *i. e.*, some rays on the uttermost right of his retina have altered their previous character. Immediately he turns the head to his left and observes the second object. No doubt the change in the sensations caused the deviation of his eyes. All at once again he hears a loud noise to his right. Now the muscles to move his head and eyes to the right are put to action and his attention is occupied with the cause of the noise, etc. And we say that he wills the movements because he is conscious of their execution.

But all this is clearly understood by everyone. The ultimate process in reflex and volitional acts then is the same, only the latter are more indirect; hence, more

complicated reflexions than the former, and the probable result (willed) exists simultaneously in our consciousness. Again, this subjectivity is more varied, more complex; hence, less machine-like in the latter actions, which gives us the wrong and deceptive idea of having a free choice to act as we please. But this choice is absolutely dependent on circumstances too manifold to be enumerated all. If, for instance, we direct our attention "voluntarily" (?) to an object we must have been conscious of that object or of its qualities before. In lingual consciousness we combine these qualities with their respective denominations. We take them single, having synchronously their name upon our tongue, so to speak. We do this, however, not by willing it, but because we must. Here our deception of a free-will comes in. Because there can be but one idea, but one object, even but one quality in our attentive consciousness at the same time, we seem to select one impression as if it were left entirely to our choice. Here is the error. We do not choose at all. We shall be conscious of that quality, of that object or of that event—series of succeeding perceptions which is predominant in every and all circumstances. In other words, volitional consciousness is nothing else but the greatest intensive and extensive vibration of the nerve-cell molecules—attentive consciousness, and then we say our attention is occupied by that subjective state which is induced by the greatest amount of antipodal nervicities uniting in our nerve-cells.

Of course, we must not for a moment leave out of sight such important influences upon volitional, or indirect reflex acts as are exerted by instinct, reason, habit, education, character, etc., which are all well founded in our organization, either existing already at birth—inherited or being formed afterwards by external impressions—acquired. Volition, therefore, is but reflex action, or spontaneous (?) action, of which the determinating causes and influences are generally concealed to superficial investigation. In our times it is no more strange nor humiliating to

believe in the strict legality of the apparently voluntary actions of man, which legality is but the common relation of cause and effect. And since the statistics of Quételet, Wagner, etc., have shown that virtues and vices occur always in a definite relation to number, education, wealth, nationality and other similar conditions of a people, and recur always with great regularity, the doctrine of volitional freedom has received a shock from which it will not recover. Thus we cannot distinguish any more between liberty and necessity. Every phenomenon, physical or psychical, is the legitimate outcome of what was and what is. Certainly we can choose to do one thing or the other, which has been termed free-will; but there are always circumstances influencing us why we do just the one thing or the other, which is no more free choice—no more free-will, as such. The ideas—reason and volition—even contradict each other. An act, to be reasonable, means that it accords with other conditions; the latter determine the act, and how can it then be volitional? That impulsive acts cannot be called volitional is self-evident. Or if an act is unreasonable, contradictory, it is always the result of either a violent temper, bad education or even of a diseased nervous system; and nobody will claim that that is free-will. The words "I will" or "I won't" are easily exclaimed, but whatever one does or don't depends on internal or external circumstances that are entirely beyond his responsibility.

In suppressed reflex actions that would result from pain (inhibition), the nervical currents instead of going only through the spinal reflex centers, go also through cerebral centers, producing such contractions of muscles and such a mode of consciousness as have been called volitional. But it is merely a more complex reflex action after all. In different persons, and in the same person at different occasions, the outward signs of pain are various, from the screaming of a hysterical female at the slightest cause to the brave endurance of a Mucius Scaevola. It is all a matter of education and habit; from the most primitive

and natural show of every feeling to the most heroic and cultivated concealment thereof. The natural effects of injuries, such as crying, retaliation, etc., are formed firmly in our organization. They are however influenced and modified by all possible circumstances. The same injury, the same extent of tissue destruction, causes the same condition in the first-reached nerve-cells—lowest centers of spinal cord. But now it assumes a different aspect; in one case the increased currents of N. are directly reflected to the muscles of the limbs, apparatus of voice, etc., giving rise to impulsive, uncontrolled acts, whilst in other cases higher centers in the brain are also implicated and the stimuli are reflected indirectly to such muscles as do not show pain so directly, as pressing the teeth together or various calculated actions, or reflected so as to produce only vasomotor disturbances, inducing however, at the same time, all sorts of heroic thoughts. In this way we account for the different effects of the same or similar stimulus in different individuals. In one the motor fibers from the anterior cornua may conduct the impulses most easily; in another, the fibers leading to the brain. The result is, in the former, direct and simple reflex actions; in the latter, inhibition, calculation, and more indirect and complex muscular contractions, indicating what we call volition. One man returns an offense with a blow; another with contempt, biting on his teeth and lips or clinching his fists, etc. In the former, the whole nervous process at first involves fewer cells, and hence, the motor impulses are more rapid; in the latter, more nerve-cells are functionating right away, and hence, the impulses are retarded and more complicated. Examples, imitation, training, habit, etc., cause the difference, and persevering in them only we can make ourselves strong-minded, self-governing, out of explosive, emotional individuals.

Automatism.—In all movements called forth by volition which are said to become automatic afterwards, viz., without having our attention constantly directed to them, as locomotion, knitting, or such simple, continuously

repeating motions, the last is the stimulus to the present movement, and this again to the next, and so on. Properly speaking, not the motions themselves but the sensations (and not even these but the frictions, the generations of currents of physical N.) produced by the motions are the stimuli. The contact of the foot with the ground, of the muscles with each other, etc., furnishes the stimulus for the muscular actions of lifting the leg while walking. The amount of force necessary and the direction in which to step with safety is estimated by the sense of vision. Close the eyes and the gait will become uncertain. Yet, a blind person can walk tolerably well if he is guided by someone else or by a stick. The sense of touch appears to substitute the sight in this case, as far as the estimation of the needed force is concerned, but regarding the safety in walking on uneven or unknown ground, we cannot very well miss our eyes. Thus, a second assisting or guiding impression upon another nerve, most favorably of a different sense, as of sight combined with touch, makes movements of any kind steadier and more successful to the purpose.

To stop these automatic actions requires again an act of so-called volition, *i. e.*, other impressions produce other reflex actions. We see thus that automatic and volitional acts, so-called, are ultimately identical. They are both indirect and more complicated reflex acts, with the difference that automatic actions are executed oftener, are more habitual, and hence, look more machine-like than volitional acts. Such automatic actions are then similar *vice-versa* processes, as respiratory and cardiac movements. Only the latter are still more necessary, are executed through longer times, not alone in one individual, but through ages in the whole series of our ancestors—evolution—hence, they cannot be suppressed voluntarily, and their regular activity varies but little in consequence of normal impressions. That they are influenced, however, by nervical states during muscular exertions or mental excitement for instance, is well understood by every

one. To recapitulate, attentive consciousness need not figure in so-called automatic motions. During their occurrence our attention is generally occupied with some other sensory-motor process; or when we are asleep, the higher centers, whose nervical activity represents attentive consciousness, do not functionate at all, and automatic actions may or may not be remembered. (*Vide* Memory.)

Co-ordination.—Now, there are sensory-motor centers, groups of nerve-cells, which stand in communication with each other, whose nervical activity, *i. e.*, nervic currents passing through them, results in movements of an already very complicated, hence purposive character. Their location in the nervous system can be and is already, to some extent, more definitely pointed out. They may be concentrated in one group or several groups, not even necessarily close together, but always connected, so as to functionate harmoniously, when the required sensory impressions occur. As in swimming nearly all the muscles of the body and limbs are used, we must infer that nearly all the motor cells of the different spinal segments are in activity likewise. Thus, swimming is quite a complicated reflex act, viz., numerous sensory-motor reflexions take place, and whenever these are in harmony with each other we call the respective centers co-ordinated. Therefore, really a center of co-ordination does not exist, but co-ordinate centers do. In the frog, we know, some of them are situated in the spinal cord; those for swimming, leaping, sitting, etc. In the fowl, standing and walking are not interfered with, if the hemispheres are removed; hence, the respective co-ordinated centers must be situated below these cerebral parts. In the dog, monkey, etc., Fritshe and Hitzig have caused certain movements, little complex, by stimulating certain areas of the convolutions. These areas are very likely not the centers themselves for such simple motions, but only superimposed layers, or the nerve-fibers in them lead to the concerned centers below. For, if several layers of brain tissue are

excised, stimulation in these places still produces the same actions, as now the fibers which transmit the impulse (electrical currents) downwards to such centers are exposed. Co-ordinate centers is then a very appropriate name for these groups of nerve-cells. They are arranged in numerous varieties, from the simplest manner, reflex centers proper, up to the most complex so-called volitional centers. They are stimulated, viz., started and kept agoing, by certain sensory impressions and the corresponding movements all can become automatic, *a priori*. Such actions are, for instance, walking, riding, reading, reciting, knitting, piano-playing, etc.

We shall explain now how the more complex co-ordinated movements are executed. Co-ordinate centers functionate, *i. e.*, the nervic currents, motor impulses, are discharged as the result of: 1st. An overflow of either physical or chemical N., inducing some subjective states and involving at first all or any part of the groups of cells which form the respective co-ordinate centers. That discharge has generally been termed an act of volition because the stimuli did not stand in direct relation to the effects, or at least, this relation was not recognized as such. 2. Distinct external stimuli, acting reflexly in a constant and easily recognized manner. In both cases the co-ordinated movement is nothing more than a highly complicated and specialized reflex act; in the former rather more so than in the latter, and the subjectivity in both is what we have called a higher, intelligent consciousness, when our attention is occupied by the acts; or our subjectivity is simpler and the acts are called automatic, when we are asleep or when our attention implicates some other sensory-motor process. It is certain that the centers of the more necessary co-ordinate movements—and their arrangement is usually the simpler one—exist in each being at the time of its birth (*vide* Instinct), viz., the nervous mechanisms with their nerve-cells and their afferent and efferent nerve-fibers are present at birth in a distinct and but slowly varying organization, of course

little developed in comparison to the later period of adultness—evolution.

But to return: These co-ordinated movements can only be performed after the respective centers have been trained to functionate correctly, viz., after the connections between the nerve-cells of the co-ordinate centers and between the latter and the other parts of the co-ordinate mechanism, intracentral, afferent and efferent nerve-fibers have been opened up, so to speak. The more thoroughly this is done, by the frequent performance of the act, the greater will be the perfection of the co-ordinate movement. Undoubtedly, in the child some of these fine connections are actually formed during and as the result of this process of education. There are a great many undeveloped connections between the nerve-cells, merely simple filaments, which still earlier were but simple connective tissue-cells, which, after nervical currents traversing them, become organized into the true conducting nerve-fibers with axis-cylinder, etc. In the child, perfectly developed commissural nerve-fibers are not so very numerous, but with the progress of its education, they become less and less rare in proportion to the increase in the variety of actions. The nerve-cells becoming overfilled too fast with N. and not having sufficient efferent fibers to carry it off the nervic currents pass through the neuroglia, stimulating its cells, nuclei or its plasma alone, to form simple filaments at first, and by passing through these often transform the latter to true nerve-fibers. A similar process of development goes on in the fœtus when the first traces of nervous tissue can be distinguished.

This training of the co-ordinate mechanism is, as we all know by painful experience, a laborious process. Our first efforts at walking, writing, knitting and the like are clumsy and unsteady, inco-ordinate, and they require to be constantly supervised by the sense of sight, *i. e.*, by conscious visual perceptions, or what we have called attentive, intelligent consciousness; errors are being constantly corrected by fresh motor impulses from the higher

cerebral centers. These motor impulses are, however, nothing more than reflexions of nervic currents induced by the continuously occurring visual impressions, and the reflexions become more perfect and more harmonious, the implicated structures more and more organized for that purpose and the actions more and more automatic. To speak with Hughlings Jackson, the process is essentially one of evolution. Therefore, not only the motor nerves but also the sensory nerves are adapted to impulses and likewise intracentral or commissural fibers, and similar to co-ordinate motions we have co-ordinate subjective states, which are called coherent or associated ideas. They, too, are formed by frequent repetitions and are founded in the organization of our nervous system, especially of its higher cerebral centers. In fact, these ideas are concomitant with the respective muscular actions.

After the continued performance of any co-ordinate act the connections become so well and so thoroughly opened up and differentiated that the uninterrupted assistance of several senses is no longer necessary. Knitting or walking, for instance, go on without the continual supervision of the sense of sight—automatically. The co-ordinate mechanism only requires to be put into activity by some kind of stimulation and the movement is correctly performed. After frequent repetitions the motor impulses run, as it were, in grooves, and complicated co-ordinate acts can be executed quite independently of our attention. In fact, as Byron Bramwell says, after functionating repeatedly and often, the co-ordinate mechanism acquires a sort of barrel organ function, most automatic, and once its action being imitated by some stimulus, it will go on and complete a long and complicated discharge, with our consciousness not directed to such an act. Sensory-motor processes can be single or multiple, although if more than two take place simultaneously, they are very apt to interfere with each other, *i. e.*, the same nerve-fibers have sometimes to be used in

more than one process, which gives rise to inco-ordination and incoherence. A piano-player, for example, correctly executes a difficult piece of music, or a speaker correctly recites a long series of words and sentences, while his thoughts are busied with some totally different subject. It is only needed to turn on the handle, as it were, being exposed to physical impressions, and a long series of highly specialized movements will be correctly produced. Now, in all these cases, the co-ordinated centers are kept informed as to the manner in which the movement is being executed by sensory impressions, passing from the periphery, more especially from the muscles, tendons, ligaments and joints, concerned in the motions; also from the skin, and last but not least, from the end-organs of our special senses. The previous co-ordinate action furnishes the stimulus and force for the following one, and so on.

Language is nothing else but a co-ordinate act, whose subjective aspects are then called coherent ideas. That we cannot speak without thinking, is plain to everyone; therefore, we call speaking to think aloud. But that we cannot think without speaking, is not so plain to us —and yet this is the case—for thoughts are repeated sensations, and no sensation is without motion, *a priori.* Although we do not always think aloud, we at least always try to move our mechanism of articulation, and we always whisper unless that mechanism is occupied in some other action, as in chewing, eating, smoking or gnashing—or, and which is mostly the case, our mouth is shut tightly; the orbicularis oris, masseter muscles, etc., are in a tonic contraction. These acts or muscular contractions are reflex, as all must admit, and they are much grosser, much more intensive than the finer muscular contractions of articulate language. We can well understand now that the motor impulses (during our thoughts) to the tongue, lips, etc., only help to strengthen the muscular contractions of the grosser process; at least they are too weak to overcome the coarser reflex acts. We have heard

before that two sensory-motor reflexions may occur simultaneously and remain perfect if their entire mechanisms are separated. Here we see two acts interfering, but as the impulses to the articulate apparatus are too weak, they do not alter the stronger acts much. Yet, that they do this often enough, everyone surely has experienced himself. For, if we do not shut our lips firmly, we will always accompany our thinking (and writing, too, for that matter) by whispers, or some actions to whisper. The motor impulses during thinking (reflected nervical currents of auditory and visual impressions) are lost, so to speak, if some of the muscles of articulation are in motion otherwise.

Reason; Instinct.—Reason is an abstract idea, hence, we cannot locate it. It is a certain aspect, a certain condition of an act. Whenever a being acts in accordance with nature, with facts, with the surroundings—acts as the majority does under similar circumstances, we call it rational acting, and say the being possesses reason. A reasonable action, therefore, is natural; it is based upon our organization. Obstacles are often avoided or eluded, instead of directly overcome. For example: One does not climb over a rock if he can easier go around it. This is due to his organization. However, this organization is not definitely fixed for all actions. On the other hand, for the majority of actions, a great variety is possible. When an act is to be performed we select the easiest way, in which we have to use the least amount of muscular contraction. This is trained into us. We select, *i. e.*, we try different ways, and instinctively choose the easiest—we accomplish our purpose, movement or thought with the least possible exertion. Reason is then the outcome of experience; of our own, selection; of others, imitation; of our ancestors, instinct. This experience, again, is the result of analogy—is based upon observation. To illustrate: An animal is injured by a hunter. The next time it avoids all men carrying a gun—it suspects danger; it judges from the former event to another similar

one. Its subjective state is an emotional one, of fear. "Oh, that is instinct," it is said. Well, instinct and reason are identical aspects, only differentiated for convenience' sake.

Instinct, or reason, are the combined result of experience, observation, education, etc. They are founded upon our organization, either acquired by ourselves—reason, or inherited from our ancestors—instinct—evolution of the nervous system. Such actions as the baby's sucking, putting everything into its mouth, etc., are due to the inherited organization of its nerve-centers, which in their turn have been arranged thus in its predecessors by the frequent acts of stilling their hunger. Again, the sexual acts, which appear at maturity, are inherited in the same manner. These acts, then, are called instinctive; they will take place always, and more uniformly upon the respective stimulation. Instinctive actions thus are more reflex, while rational ones are more volitional. Hunger and love are the two foremost and representative phenomena of instinct, of which the German poet says: "They keep the wheel of life in motion." The sensory-motor processes of these two nervical states, which are absolutely necessary to sustain the life of the individual and to perpetuate it in the species, are more firmly imprinted upon our organization than most other (more complex or so-called intellectual) states. Although the nerve-centers of the former are not quite so uniformly organized, as, for instance, the mechanisms of circulation, respiration, deglutition, defecation, parturition, etc.; nevertheless we find that the general instincts of hunger and love are at bottom the motives for most of our actions —not only in animals, but also in mankind, and not only for the normal, but also for the abnormal and criminal acts.

Intelligence.—Of course, reason is more complicated than instinct; its phenomena are modified to a much greater extent than the latter's, according to the greater variety and number of concurring circumstances. And

the greater the variety of reasonable acts in a being, the more intelligent it is, we say. However, most complex, least organized; hence, reasonable actions are not so harmoniously smooth as instinctive ones. Intelligence is, then, the greatest variety and simultaneous harmony of associated sensory-motor processes. And the finer and more numerous and yet harmonious these associations are the more intellect the being possesses, as the visual-motor and the auditory-motor reflexions in mankind—in other words, language is the main source of our intellect. Animals, therefore, possess reason as well as instinct, but their intelligence is not so varied; not so great as that of man, because, *a priori*, they lack in their organization the mechanism of language—hence lingual consciousness, verbal thoughts—in short, the intellectual faculties of man. It is, notwithstanding, but a process of evolution, from the simple subjectivity of an amœba to the towering intellect of a Shakespeare or a Goethe. After this we can well see how absurd it is to talk of a center of reason, though we could localize the lower centers of the one or the other of the instincts. A certain state of consciousness may be located somewhere in our nervous system, and that state, regarded from one aspect, be called reasonable; from another, emotional. But neither of the so-called mental faculties, reason, emotion, memory, etc., have a center definitely located. All these faculties are but different aspects of sensory-motor manifestations; are but different states of subjectivity, arising from the functional activity of different groups of nerve-cells.

Character.—In general, character is a term for the totality of emotional and ideational traits of an individual consciousness. The word "temper" is used when the emotions predominate, whilst character implies these and also the more quiet—ideational subjective states. Thus, we speak of a firm, sceptic, changeable character, and of a violent, amiable, irritable temper, etc., although the two are synonymous. The character of each individual

is due to its organization, which is partly inherited and partly formed during its life. The latter takes place in its early life, during the time of its growth, as the result of observation, education, habit, etc. This formation of the child's character by its surroundings has a much greater influence on the kind of its future character than the law of inheritance. The offspring inherits from its parents only a more general disposition for a certain character. Education, however, can change it entirely—of course, debase or improve it. By education we understand the effects of all the impressions on the child's subjectivity—its total experience. The different characters, then, are due to the difference in the organization of the nerve-centers and nerve-tissues. The nervous centers possess all possible degrees of co-activity, due to the greater or lesser complexity in their arrangement, hence, the variety of sensory-motor processes that man is capable to undergo. Evolution accounts for this great variety. It is propagated. Persons with a highly complicated nervous mechanism have offspring with a similar organization. The mental endowments and bodily powers are alike inherited. Nothing in the whole circuit of physiology is more wonderful than that the use or disuse of a particular limb, or of the brain, affects a small aggregate of reproductive cells, seated in a distant part of the body, in such a manner that the being developed from these cells inherits the characters of either one or of both parents, or of any of its progenitors.

Conscience is another abstract idea, indicating some kind of an emotional state usually. In its totality it has no real existence. If anybody does wrong, he fears the consequences; that is, the probable result of punishment or sufferings exists in his subjectivity, causing fear, grief or sorrow. If one does something good, the reward for it in his subjectivity gives rise to pleasant emotions. Sometimes the emotional state is not predominant, but merely the intellectual one; man acts, then, in a more general way upon principles. These are taught him,

impressed upon his subjectivity, forming his character, and according as they are good or bad, his character is either moral or immoral. *A priori*, man is not responsible; still we claim that he must be punished for crime, in order to protect ourselves; for, fear of punishment and hope of reward are the two most important circumstances which influence man's natural acts and desires—of hunger and love. Those two factors tend to encourage him to virtue, and keep him back from crime. Egoism is the motive ultimately for all living beings. Yet, in man, if he has once made moral principles his own, there need not always be present thoughts of reward when he does good, or of punishment when he does bad. Doing good, has then become habitual—somewhat instinctive with him.

Mind; Soul.—In conclusion, then, consciousness is the subjective side of sensory-motor phenomena—is but molecular motion of organic substances. Soul or mind are, therefore, absolutely dependent upon conditions of our body, more exactly of our nervous system. Mind does not manifest itself such unless there is such a certain state of the brain, etc., formed such by certain external impressions and originated by them, anew or induced by internal influences, as repetitions. Union of positive with negative N., or the consequent vibration of molecules in nerve-cells is our subjective existence, and the reflexions of the nervical currents, as indicated by Figure D, with the subsequent union of the antipodals in muscle-fibers causes motion. Whilst all the attributes of the soul are but different aspects of these processes, variously combined, and all its abstract faculties, such as generosity, amiability, judgment, reason, etc., are qualities of actions, which again are dependent on the material organization, the soul and the mind, as a whole, are to be found in the totality of these sensory-motor activities within our body. Why not? Does it offend our feelings? Not after we have become used to it. It can have no degrading influence on us to know the truth, even if it be only

relatively so. Let us not accept this or any other theory absolutely as a dogma, but let us always be ready to adapt our views to acknowledged facts as they accumulate within our experience. The irregular and manifold arrangement of the cells and fibers in the nervous system offers us then the reasons why most human actions seem volitional. If there were such a simple harmony in man as in a steam engine we could easily predict his actions, which of necessity had to take place just so, as the kind of machinery predestines them. But the variety—yes, the irregularity of the nerve-centers, not only compasses but necessitates acts changeable, original, acts of a far-ranging possibility, acts, the motives of which, are often deeply hidden to our imperfect understanding; in short, acts of an apparently spontaneous or voluntary aspect. However, when are the stimuli; when are the conditions under which the organization of the nerve-centers is formed, as education, habit, surroundings, etc.; when are all the influences of the past and present together; when, indeed, are the organisms, molecule for molecule, cell for cell, fiber for fiber; when are all such circumstances ever alike in two individuals? Never is that absolutely the case. And whenever these conditions do approach in similarity in their main points, we find the resulting actions of different individuals to resemble each other more or less. It is, therefore, not at all surprising with this unlimited variety of determining and causing influences that the phenomena of life, and especially of the mind, should be so immensely diverse. For all that, man is only a machine, although of such a complicated make-up and subjected to such an intricate number of different agencies that it is quite pardonable when, heretofore, ideas of volitional liberty, of an immortal soul, etc., are believed in, when briefly, something supernatural, something immaterial, has been thought to exist within him, to lie at bottom of the still unexplained, hence mysterious, processes of human life. We are averse to difficult investigations, and it is so easy to get around that by attributing

the phenomena of the mind to the inexplicable entity, the mystical soul, and call them transcendental. But now we know that life is due to the make-up of the organism and to the harmonious performance of its functions, as force is only a property of matter, a name for its motion. And all what is termed soul, spirit, etc., is gone when life is over, *i. e.*, when there is some material hinderance in our organization for any or all of its necessary functions to take place, whether demonstrated so far or not. Though electricity or nervicity is still generated after death (for chemical and physical processes, decomposition and heat continue also in a corpse) it does not travel the course of the nerve-fibers and cells, producing sensations and muscular contractions in such a manner as we used to observe when the integrity of these organs was still undisturbed. Death ends all. In death there is peace.

Trophic Centers and Nerves.—There are no separate trophic centers or nerves. If we sever the nervous supply from a muscle it will atrophy. It does not perform its function, the nervical currents do not flow in their usual course, physico-chemical actions take place abnormally. Hence, the structure of the muscle is not repaired accurately but disappears gradually. The anterior cells in the spinal cord, then, are the trophic centers and the motor-fibers with the respective vaso-sensory fibers are the trophic nerves for the muscular tissue. And, in fact, though in a secondary sense, the sensory and vasomotor fibers of the muscle are trophic nerves, and the intervening cells are trophic centers for its tissue. If we divide a sensory nerve, the parts supplied by it easily degenerate. Under circumstances when the parts are protected from injuries, the nervical currents may be kept agoing locally and normally, in the manner that Figure C illustrates. But in disease, and when the skin is exposed to pressure, its tissue will disintegrate, forming bedsores, etc For now the reunion of the N. is all on the spot, and besides, abnormally in degree. Thus the sensory and vasomotor nerves are trophic nerves, and the corresponding

cells in the posterior cornua of the cord, etc., form trophic centers for those parts over which they preside. Every sensory nerve, before its fibers enter the cells of the spinal cord proper, however, is provided with a ganglion or group of cells. If the posterior root is divided between this ganglion and the cord, still a way remains to make conduction of N. through the nerve possible, and consequently the sensory fibers do not degenerate in this condition. Here is one of several possible explanations. The cells of the ganglion form communications for the nerve-fibers, and thus nervical currents may be established, the function preserved and the structures presided over, nerve-fibers included, remain integral, although separated from the spinal centers. Whenever the normal circuits of N., physical or chemical, are interrupted, whether in the peripheral or central nervous tissue, trophic changes take place, in proportion to the deviation from the previous or normal nervical state of the respective tissue.

Vasomotor Centers.—From the foregoing we must furthermore conclude that a vasomotor center, as such, in the medulla oblongata is not to be thought of. Every group of cells in the course of a current of physical N. may be called a vasomotor center, either in the spinal cord or in the sympathetic system: Figure D. That the medulla oblongata has been regarded as the principal vasomotor mechanism is explicable, for nearly all afferent and efferent nerves or their cerebral connections concentrate here, so to speak. Of course, if we call the cells in the anterior spinal cornua, motor centers, then the sympathetic cells 6 g, Figure D, are properly called vasomotor centers, etc. In the natural condition of things, however, we do not find such a regularity of arrangement as we have drawn in Figure D. It is immaterial whether all vasomotor and vaso-sensory fibers originate from the sympathetic or whether part of them come directly from the spinal cord. Cerebro-spinal system and sympathetic system are but anatomical divisions, and we must not con-

found the physiological functions of any nerve center with that division. Yet in its totality the natural state is represented by the diagram, Figure D, well enough.

Heat Regulation.—There is a standard degree of temperature for the healthy condition of animal tissues, viz., 98½° Fahrenheit in warm-blooded animals. It is a law of nature, or better, a fact in nature, that organic tissues undergo chemical transformations most actively, which is, *a priori*, to afford the greatest vitality at a certain temperature and yet do not lose their individual composition and beautiful structure. The temperature, therefore, has to be kept at the degree of 98.5° Fahrenheit, and nature's provision for this is very simple. If the temperature is increased above 98.5° it is either by the heat of physical processes, as friction, or by the heat of chemical processes. The former cause we may properly call external and primary, and the latter, internal and secondary. But both give rise to an overproduction of physical N., which goes to increase cardiac activity (intensify its beat in number and force) and contract internal blood-vessels, and hence drives the blood into the arteries going to the surface. Here the capillaries are at the same time dilated in consequence of the union of physical N. in their cell walls or the direct effect of heat. In this dilated condition and peculiar nervical state, together with the increased blood-pressure, liquids, the perspiration water, easily transude, and the evaporation upon the surface lowers the body heat to the normal If, on the other hand, the temperature is reduced by external cold below 98.5°, the heart beats slower and the internal or deep vessels relax, because of the want of constricting force; the blood-pressure is decreased. The blood now stays away from the surface and the normal body heat is thus preserved. We must assume that the external sensory nerves are continued into the constrictor nerves of the large internal blood-vessels and the internal sensory nerves go into the vasomotor nerves of those vessels that lead to the surface (*vide* Figure D). The common physical facts of

heat expansion and cold retraction help to intensify the above vital phenomena. By this *vice versa* action, then, nature regulates animal temperature, and it is plain now that the idea of any localized center for heat regulation of the whole animal body is erroneous.

Electricity and nervicity may be no such substances as we have defined them here, but only forces, *i. e.*, properties of matter, its different motions, peculiar vibrations of its molecules, some kind of polarization, etc. And thus impressions and impulses may be conducted directly by molecular waves. Of late, someone has found that electricity behaves similar to light; that it is reflected and refracted like the rays of the sun. Whatever progress will be made in the explanation of electricity, nerve-force will share it. They are certainly analogous, if not identical. So it does not matter, at whatever conclusion about the essential nature of either electricity or nervicity we arrive, it will be one showing their close relationship or even their identity. We offer in these remarks on nerve-force only a basis upon which we can found in safety our further studies of the physiology and pathology of the nervous system, with the probability to encounter the least difficulties or the least discord with facts and reason.

TYPHOMANIA.

REPORT OF THREE CASES, WITH SOME DISCUSSION OF ITS RELATION TO CERTAIN OTHER FORMS OF INSANITY.

By THEODORE DILLER, M. D., St. Louis.

Clinical Assistant to the Chair of Psychiatry and Neurology, Marion-Sims College of Medicine; Formerly House Physician to the Philadelphia Hospital; Late Assistant Physician, State Hospital for the Insane, Danville, Pa.

TYPHOMANIA is known by a great variety of names. It has been called by various authors, Bell's disease, *délire aigu* (by the French), acute delirium, acute delirious mania, delirium grave, mania gravis, phrenitis, acute peripheral encephalitis, acute periencephalitis etc., etc. Of course this great multiplicity of names is suggestive of views held by various authors as to the etiology, pathology and symptomatology of the disease. Bucknill and Tuke* ascribe credit to one of our countrymen, Luther Bell, for specially calling attention to the affection in 1844. Bell held that this form of insanity was always fatal. Conolly,† the next year, reported seven cases, all of which terminated fatally. It is believed by some authors that typhomania is identical with the phrenitis of the ancients, a form of insanity distinguished from simple acute mania by the violence of the symptoms and the great liability to fatal termination.

The French have described the disease under the name of *délire aigu*, and their descriptions, in the main, agree with those of Bell and Conolly.

Nearly all modern writers have, in some place, given to typhomania or delirium grave, a distinct place in their various classifications. Since the time of Brierre,‡ the

* "Manual of Psychological Medicine," page 305.

† Lancet, 1845.

‡ *Union Medicale*, 1849.

constant presence of fever in these cases has been recognized. Wood* says that there is distinct fever, the temperature sometimes rising as high as 106,° F. "After death, evidences of peripheral encephalitis are to be found." For this reason, Wood styles the affection Acute Periencephalitis. Spitzka† also says, concerning the morbid anatomy of the disease, that it "consists in an intense hyperæmia of the brain and meninges. This is constantly found in patients dying in the excited periods of the disorder. That grave delirium is the result of a vasomotor over-strain analogous to that supposed to exist in paretic dementia, is supported by the etiology, the manner of origin and the somatic sequelæ of this disorder."

The disease is often due to prolonged mental and physical strain. All writers agree in ascribing a greater frequency of the affection in females than in males. This is due to the fact that women in the puerperal state and seduced women who have become pregnant are most prone to the affection.

The symptoms of the affection are very distressing. Spitzka‡ says "The seduced girl will count as if hearing the bells that toll out the hour of an assignation, and then suddenly break out in a piercing cry or a silly laugh. The business man who has become delirious after a period of business worry, repeats figures or names of articles of trade, of firms, or of stocks, in an incoherent jumble."

In all the cases I have seen, the patients, by their facial expressions, conduct and incoherent words, gave evidence of laboring under great *fear* and *anxiety*. The insomnia is almost absolute. Words and short sentences are uttered constantly, but usually not in a very loud voice. Indeed, the sufferers, by excessive use of the vocal apparatus, become husky. The motor activity is incessant but

---

* "Nervous Diseases and their Diagnosis," page 451.

† "Manual of Insanity," page 250.

‡ Ibid., page 248.

not purposeful, as we usually see in cases of ordinary acute mania. Appreciation of surroundings is almost entirely lost, although patients will sometimes for a moment recognize a person to forget him the next. The face is pale, haggard, anæmic; the teeth and gums covered with sordes, and in all cases observed by me the pupils were dilated. I have also noticed in one case the constant repetition of a set phrase (a symptom remarked upon by Spitzka).

The group of symptoms give us a clinical picture which makes it easy to distinguish this form of insanity. The phenomena are so striking and pitiable that they cannot fail to impress anyone, even those accustomed to dealing with insanity.

Here we have an acute insanity, undoubtedly the result of a profound coincident exhaustion of both mind and body. Post-febrile insanity and puerperal insanity are due to the same causes (in them, operating less powerfully). The symptoms of the last two, unlike those of typhomania, are by no means characteristic. Worcester,* in a careful study of eight cases, has shown this to be true of puerperal insanity. The question I would like to consider in connection with these three cases I am about to report is this: Are typhomania, puerperal insanity post-febrile insanity, and insanity following surgical operations, manifestations of the same morbid process (only differing in degree) in the brain?

These cases were treated in the State Hospital for the Insane, Danville, Pa., by my friend, Dr. Hugh B. Meredith, and myself. Dr. Meredith has kindly furnished me with notes of the cases.

Case. I.—A. C——, admitted to hospital, March 6, 1889. Age 48; wife of farmer in moderate circumstances; has one child aged 16.

Physical Characteristics.—Height, 5 ft., 2 in., slender; much emaciated; brown hair; grey eyes; sharp features; pulse small—difficult to count because of restleness of

* *American Journal of Insanity*, Vol. XLVII., No. 1.

patient; tongue dry, brown, furrowed; teeth and lips covered with sordes; accumulation of very tenacious mucus in mouth, which she is unable to expel; bowels torpid.

Mental Symptoms.—Incessant restlessness; excitement. Attention cannot be secured; low muttering delirium; facies rather approaching exaltation; habits, as far as known, correct.

Family History.—Father committed suicide while insane.

First Attacks.—Inception of insanity dates from a confinement twenty years ago. Acute symptoms lasted, at that time, about three weeks. She was sleepless, violent, refused food, and tried to kill herself with a butcher knife. Following this was a period of quiet deterioration, lasting about seven years, when, without apparent cause, a second acute attack supervened, presenting same symptoms as the first, and lasting about two weeks.

During the subsequent thirteen years she was free from excitement, able to do simple housework but not to direct or assume charge of household.

Present attack (*or exacerbation*) came on suddenly. It was apparently directly caused by death of a brother, which occurred one week previously. [Hence, case is one of twenty years' standing, presenting three exacerbations, each of about a month's duration, the interim being marked by quiet mental obtuseness or dementia not requiring hospital treatment.]

Condition on Admission.—Noisy, incoherent, muttering to self; resistant, clinging desperately to persons about her; destructive to clothing; threatens to cut throat; refuses food through fear of poison; asks for water, with which she rinses her mouth but does not swallow.

March 10.—Has been fed by nasal tube since her admission—whiskey, tonics and concentrated nourishment being given; offers persistent opposition to feeding process. Makes violent efforts to regurgitate nasal tube and food. Incessant restless activity continues; pulse very frequent and small; distinct elevation of temperature; teeth, tongue and lips covered with sordes. Condition very critical.

March 13.—No improvement. Condition aggravated by appearance of erysipelas of right hand and arm, extending to shoulder; disposed to use up little remaining

force by being upon feet; kept in bed by hand of attendant.

March 14.—Condition, if possible, even more precarious than yesterday. Fed small quantities frequently; pulse almost imperceptible. Mouth kept moist with water; takes no food or water of own volition.

March 16.—Very much exhausted; restless, but delirium less marked; takes a little brandy and beef extract; nasal feeding continued. Pulse, at times, almost imperceptible.

March 19.—Slowly improving. Mind is clearing up; less restless, incoherent and troublesome; sordes disappearing; tongue becoming moist; eats small quantities of solid food at short intervals; brandy, one half-ounce every two hours.

March 22.—Eats well and is gaining strength, slept well last night without watching. To-day is allowed to rise, and spent the time in quiet ward. Recognizes the nature of her surroundings for the first time.

March 23.—Continues to improve and no longer requires aid of special attendant; is quiet and more rational, but much that she says is silly; wants to go home and talks of eloping. Tonics taken.

March 28.—Remains quiet and fairly rational. Eats and sleeps well, but is physically weak. Is probably in her normal condition.

June 4. 1889.—Gradually becoming stronger; advancing toward physical health steadily, with exception of slight malarial attack, which was easily controlled by use of quinia. Is now quiet, weak-minded, seldom talking except in answer to questions, unless it is about her discharge; does a little simple work by direction. *Discharged* to-day, restored to usual condition.

Is it possible that this woman's two first acute attacks were of the same nature as the one here recorded? It is possible but hardly likely; at least they could not have been as severe, for she surely would have died without forced feeding. Probably the first attack was one of puerperal insanity. Granting this to be true, would it not seem probable that puerperal insanity and typhomania are both due to the same diseased process in the brain, but which is more extensive in the latter than in the former?

Case II.—E. H——, admitted December 4, 1884, age 25 years. Native of Wales; resident of Wilkesbarre; wife of poor laborer; married four years; has two children; date of last confinement, November 10, 1884. Cause of insanity, puerperal state and family bereavement (death of brother one month before confinenent.)

Family History.—A relative on mother's side was insane.

Personal History.—Two years ago fell on her head, fainted and was in hospital three days; recovered. Has been insane about two weeks before admission. Put a rope about her neck with suicidal intent. She is destructive and prone to injure herself.

Physical Characteristics.—Average height; weight, ninety pounds. Dark hair, blue eyes, anæmic color; pulse, weak and rapid (94.) Tongue, pale, coated; bowels torpid.

Mental Phenomena.—Is very much depressed. Moans constantly. Unwilling to take a proper amount of nourishment. Seclusion often necessary because of habit of denuding herself, and to protect from possible injury from other patients. Difficulty in administration of food continues. The dominant mental characteristics are fear of injury and desire for self-destruction.

December 21.—No special change. Occasional purge necessary.

January 21, 1885.—No special change. Seclusion not so frequent.

March 24.—Improvement marked; clothing worn properly and in proper quantity.

May 13.—General appearance much improved; transferred to quieter ward. She is still much depressed and sits much of the time with her hand on her throat, asking to be choked, hung, etc., etc. Is readily led to do some simple work.

June 28.—Improvement in mental and physical condition continues; is able to describe her erratic ideas while "astray."

July 9, 1885.—At the urgent request of husband was discharged, nominally restored, but room for more physical improvement.

March 15, 1890.—*Readmitted.* Has now four children, last confinement occurring four months ago. Exciting cause, as in former attack, the puerperal state and family troubles (incident to worry and overwork in taking care of

a brother suffering from typhoid). Said to have not been well since last confinement. Duration of insanity stated as two weeks, but actually excited only during last four days. Has been noisy, incoherent, and has taken little during the last three days; attempted to drink a bottle of medicine, probably with suicidal intent.

Present history states that she was kicked on head by a brother when a child. As a result, has a depression of the skull.

March 15.—In condition of incessant nervous and muscular activity. Speech incoherent, rambling, but not loud; makes no relevant answers to questions; apparently has little or no appreciation of her surroundings. In her ramblings, frequently mentions the word "confinement;" expression of face denotes great fear and anxiety, probably the result of delusions and hallucinations. Physical health much impaired, exhibition of force all "surface" strength. It is likely that patient has little real strength.

Refuses food; forcibly fed (nasal tube). No sleep except after hypodermic of hyoscin $\frac{1}{100}$ gr., which insures four to five hours' sleep. In seclusion.

May 1.—Much improved physically; tongue clean; a better color; a gradual increase in weight due to ingestion of milk, pts. ℥iss, raw egg hot, beef pwd., spt. frumenti, ℥ss and tonic of tincture iron gtt. x., quinia one-half gr., tr. columbo f℥i, t. d., by nasal tube. Takes nothing voluntarily. At first, regurgitated much that was given, now retains all; remains constantly in motion; is noisy and incoherent; attention not gained; wholly irrational and extremely obscene in talk; destroys clothing, bedding, and denudes herself; dirty in habits during day; sleeps naturally and is clean at night; kept in seclusion.

May 20.—Physical improvement; condition of noisy incoherence, with frequent periods of loud shouting; vile language; dirty habits; sleeplessness; destructive; is resistant to care of attendants; was kept in hall about three weeks under constant care of attendant; now again in seclusion. Condition, maniacal.

The close connection between puerperal insanity and typhomania is obvious in the two attacks of insanity in this patient.

Case III.—I. E. H——, male, artist, aged 21, was

admitted August 10, 1883. Native and resident of Center County, Pennsylvania; a farmer's lad in indifferent circumstances. A sister has been an epileptic for eighteen years.

Was a bright and promising boy, free from all known vicious habits, until three years ago, when he sustained a fall of sixteen feet from an apple tree, striking the back of his head upon a stone, and ever since has suffered slightly.

Two years ago had an attack similar to the present one, though milder, recovering after a few days. Since then has had slight attacks at long intervals, lasting a few days, characterized by unusual quiet, insomnia, fever, etc. The mental change has gradually become more aggravated, and about one week ago the present attack supervened.

Physical Characteristics.—About five feet two inches tall; slender, much emaciated, apparently in a critical condition. Pulse, 108, weak but regular; tongue, dry; sordes upon teeth; mouth and lips dry; much adhesive mucus; bowels torpid.

Mental Phenomena.—Insomnia; refusal of food; chattering incoherence; breaking out into noisy talking or shouting; constant restlessness; futile efforts to break away from attendants; attention cannot be arrested; indifferent to personal wants; is destructive with clothing and furniture; threatens and attempts violence to others. Was secluded and watched at home. Seton had been introduced in back of neck, which was suppurating on admission.

Attention could be gained only sufficiently long to take a few mouthfuls of food. Egg-nog was given by nasal tube. A hypodermic of morphia sulphate administered without any appreciable effect; noisy all night.

August 11.—Muttering incoherence continues this morning. Egg-nog and morphia sulphate given, the latter without effect. 6 P. M., egg-nog repeated; restrained upon bed to lessen exhaustive effects of continuous movements; given chloral grs. xv., morphia sulphate gr. three-sixteenths, with effect of passing quiet night and sleep.

August 12.—Noisy incoherence; bowels moved; milk punch and extract beef, t. d., by nasal tube.

August 13.—Passage of nasal tube provokes vomiting; appears extremely weak and haggard; pulse very weak but not frequent; tongue again becoming dry and coated.

August 14.—Noisy incoherence and restlessness during day; retained no food until this evening, when one-half pint milk with lime water was retained; chloral grs. xv., morphia sulphate three-sixteenths, secured a night's sleep.

August 15. Milk and lime water, extract beef given forcibly t. d.; partially retained. The narcotics secured quiet greater part of day and night; no sleep without their use; is very emaciated and weak; pulse small but not very frequent; when not under influence of narcotics shows continual incoherence and constant restless movements; calls, whistles, sings jargon of words.

August 16.—Retained nourishment which was forcibly given and ate a few mouthfuls voluntarilly; narcotics continued; restraint removed—attendant substituted; delirium not so violent.

August 17.—Nasal tube used morning and evening; ate a fair dinner; slept four hours during morning under influence of narcotics.

August 18.—Is quieter and very weak; pulse, 120; mind fairly rational; slept part of day; vomits copiously yellow material intolerably fetid; calls for ice water continually; takes a few mouthfuls voluntarily; nasal tube, when used, provokes vomiting; asked for and ate a little ice cream and fruit, which was retained; all restraint unnecessary, as he is too weak to rise; condition critical.

August 20.—Slept pretty well the night through, and this morning appears better; pulse 85; took solution extract beef, ℥vi., spt. frumenti ℥ss., quinia sulphate, grs. ij.

August 22.—Has eaten heartily five and six meals daily with rapid increase in flesh and strength; goes out of doors with attendant several hours daily, otherwise kept in room; as strength increases more active delirium similar to that on admission supervenes; chloral grs. xv. and morphia sulphate grs. one-fourth, in lemonade; refuses medicine and is given lime sulphate grs. v. in suppository t. d.

September 1.—Slowly improving physically; eats heartily; takes quite long walks; has good color and is increasing in flesh; sleeps naturally; wears clothing properly and is cleanly in his room; much of former incoherence remains, but is more subdued and less persistent;

remains in room when not walking; suppositories continued.

October 1.—Health good; ferri pyrophos. grs. v., t. d.; is quiet and unobtrusive; removed to less excited ward; goes out daily with working men with marked benefit, always being quieter when thus employed.

November 17.—Marks the beginning of an exacerbation of excitement, in character, similar to that on admission, viz: noisy, incoherent, continued restlessness. Runs about hall; attention cannot be secured; is destructive and slovenly, wearing clothing improperly; sleeps from two to four hours nightly. Weather too inclement to engage in out-door work.

December 1.—Marked the beginning of another such era of greater severity, preceding week of unusual quiet; remained thus until the 19th inst., when a few days' quiet supervened, to be followed by excitement on the 28th inst.; ordered hyosciamin (Merck's) gr. one-twelfth, by mouth, gradually increased to gr. one-eighth, with good effect; required some persuasion to take the medicine, as he complained of its making him weak in the knees.

January 11, 1884.—Quiet; fairly rational to-day; tonics continued.

January 17.—Excitement, requiring seclusion for two days; hyosciamin, gr. one eighth (continued to January 29); became quiet gradually.

February 3.—Answers questions rationally; has unusual depression of spirits.

February 8.—Melancholy continues; during a visit from his father, became excited; eats fairly; wakeful and noisy greater part of night.

February 18.—Lucid period; hyoscyamin discontinued.

March 1.—Greatly excited; seclusion necessary.

March 11.—Quiet; depressed in spirits.

March 15.—*Discharged* at request of father.

Subsequent History shows continuance of periods of maniacal excitement of various durations, followed by like periods of quiet (lucid) and then of depression (circular type of insanity.)

Died in July, during an aggravated period of excitement, in which he refused food for eight days.

This last case is purposely given at length because it illustrates a number of points. For nine days immedi-

ately succeeding the admission of this patient, he was a typical case of typhomania. As to the influence the epileptic fits and the effects of the blow upon the head may have had in the course of his insanity, it is, of course, difficult to tell. The course of the case illustrates well the necessity for the most prompt and energetic therapeutic measures. It is very probable that the fatal end could have been postponed had the patient remained in the asylum. The energetic measures of my former colleague, Dr. Meredith, clearly averted death at an earlier period.

As the result of my experience gained from these cases, I am led to believe that while the prognosis in all cases of typhomania is very grave, a fatal termination is not nearly so frequent as most writers have reported it to be. But I am forced to concur in the opinion of Spitzka and others in believing that cases of delirium grave which do not terminate fatally are very apt to leave the patients with marked impairment of their mental faculties, or else terminate in other forms of insanity. In Cases Nos. II. and III. it is interesting to note the varying phases of the insanities. Case II. became one of periodical mania and Case III., as shown by the notes, a quite typical case of circular insanity. Case I. was left, after the violence of the storm was over, with serious mental impairment (a condition approaching dementia).

REMARKS.—Puerperal insanity, of course, must become manifest during the puerperal period, *i. e.*, within about six weeks after gestation. This is also the favorite time for the appearance of typhomania. Both forms of insanity come on at the time when both mind and body are profoundly prostrated. Fever and rapid pulse are common to both. In many cases of puerperal insanity the symptoms and course of the disease are similar to those of typhomania but less severe.

The symptoms of puerperal insanity, as shown by Worcester,* vary greatly. Moreover, the onset of the

* *American Journal of Insanity*, Vol. XLVII., No. 1.

symptoms, according to Clouston* and others is often coincident with the suppression of the local discharges. This would naturally argue in favor of the specific brain poison produced by absorbed septic matter from the uterus. But the question would come up: Can this absorbed matter alone produce puerperal insanity or does it only aggravate the symptoms where the conditions already exist and are sufficient for the production of the affection? If the septic matter as a causative factor, even in a proportion of cases of puerperal insanity, can be shown to be *nil*, I would unhesitatingly group typhomania and puerperal insanity under one name. I trust that future investigations may definitely determine the *rôle* played in puerperal insanity by the absorbed matter from the womb.

Prof. H. C. Wood† believes that insanities following fevers, childbirth, traumatism and surgical operations, are all due to the same brain condition, and he proposes the name "Confusional Insanity" to include the entire group These insanities, he says, (1) occur *after* the specific action of the particular poison upon the nervous organism has exhausted itself, *i. e.*, during convalescence. (2) They occur *after* diseases or affections in which there is no known specific poison. This, Dr. Wood holds, shows that the essential lesion is an exhausted and impaired nutrition of the nerve centers. But it is not, however, correct, as claimed by Prof. Wood, that these insanities always develop during convalescence. Osler‡ has lately cited several cases of post-febrile insanity, which furnish direct proof to the contrary. But, probably, as a rule, cases of post-febrile insanity, insanity after surgical operations, etc., do come on during convalescence. In puerperal insanity, Clouston§ has shown the great majority and

---

* "Mental Diseases," pages 350, 51.

† *University Medical Magazine.* Quoted in ALIENIST AND NEUROLOGIST, Vol. XI., page 475.

‡ "Johns Hopkins Hospital Reports," Vol. II. Quoted in ALIENIST AND NEUROLOGIST, Vol. XI., page 472.

§ "Mental Diseases," page 349.

most characteristic cases of puerperal insanity occur within the first fortnight after confinement. He believes this form of insanity is due to a specific poison.* He also argues in favor of a zymotic poison in the causation of post-febrile insanity.†

My own belief is that in all these cases there is great cerebral exhaustion. The cerebral circulation is altered in quantity and quality. In majority of cases, if not in all, varying grades of cerebral inflammation exist. In a certain limited number of cases, it seems highly probable that a specific poison, acting on an exhausted brain with its impoverished and altered circulation, may operate as a potent etiological factor in exaggerating and intensifying the morbid brain condition and the resultant symptoms. It is probable that delirium grave or typhomania, puerperal insanity, post-febrile insanity and insanity after surgical operations are all due, essentially, to the same brain condition—delirium grave being by far the most severe in manifestations and in the extent of its morbid process.

But for sake of practical utility it is perhaps wiser for the present, to still retain the old names rather than to group the whole lot under the name of "Confusional Insanity," as proposed by Prof. Wood.

Let us gather more exact data before we attempt another classification.

---

* Ibid., page 357. The temperature was taken in sixty cases of puerperal insanity. In thirty-four cases it was below 99. In the remainder of the cases it was above that figure, running as high as 106.

† Ibid., page 418.

Report on the Examination of One Hundred Brains of Feeble-Minded Children.*

By A. W. Wilmarth, M. D., Elwyn, Pa.,

Assistant Superintendent of the Pennsylvania Institution for Feeble-Minded Children.

THE paper which I present to-day gives the results of *post-mortem* examinations, including microscopic study, of one hundred cases, including children of all grades under our care, thirty-four of which belonged to the school department, or were employed as aids in the asylum department, and sixty-six were children belonging properly to the asylum department of the institution. Some of these cases have been fully described in previous papers and will receive only passing mention in this.

The central nervous system consists practically of ingoing fibers from the various organs of sense and nerve cells for receiving and retaining impressions received through these fibers, and by some mysterious power of co-ordination combining these impressions and evolving new combinations, which are manifested to other individuals by impulses sent through a set of outgoing fibers to the various organs of motion. It is also well known that a constant and large blood supply is necessary to maintain the normal activity of the nervous system, and the circulatory apparatus of the brain is especially adapted to this end. It is evident that disease of any part of this delicate mechanism, or any condition which inteferes with its nutrition by interfering with its blood supply, is liable to disturb its perfect working. Should this occur before the seventh year, during the period of its active growth, the mischief is liable to be irreparable and life-long disturbance of mental growth be the result.

* Read before the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, Faribault, Minn., July, 1890.

In the following paper I design giving illustrative cases of the different morbid conditions found in the series, rather than to give them all in detail.

Probably the most frequent morbid condition met with is sclerosis in its various forms. The most destructive of these to the functional activity of the part involved is the so-called sclerose tuberense. It is usually seen on removing the membrane, as one or more areas of a white color and considerably harder in consistence than the surrounding tissue, slightly elevated above the level of the neighboring convolutions. It may be single but is usually multiple. It seems to be formed by a finely granular exudate, probably albuminous in character. If it occurs in the motor regions of the brain, the resulting paralysis is very complete, and if a large portion of the cortex is implicated, profound idiocy is liable to be the result.

In one case only have we been able to watch a case of this disease through its entire course and verify the diagnosis by an autopsy.*

71–1527.—A boy, aged 16, apathetic idiot. No family history of nervous disease except that the paternal grandfather died with one leg paralyzed. The boy was seized with frequent spasms of short duration, invariably beginning in the right leg and affecting the right side only. Little or no fever. Spasms not followed by stupor, recovery being almost immediate. All the usual remedies were applied and pushed to the limit of safety without effect. After continuing several days they became less frequent and finally ceased, but the right leg was left completely paralyzed, and contraction of the limb rapidly followed. After his death, which occurred a few months later, a block of this form of sclerosis was found in the paracentral lobule, very firm to the touch and of the characteristic whitish color. Besides this lesion, defective development of both frontal lobes was found.

Another case is 58–1296.—Male; born in 1877. The

* A second case came under observation since the presentation of this paper, in which the symptoms were nearly identical, the area of tissue involved was more extensive and death occurred in a few days, due to pressure from effusion.

maternal grandmother died of paralysis. Her sisters were insane. The mother was epileptic after marriage up to within three months of this boy's birth. Was a bright-looking little fellow; mute; no paralysis; had some idea of form, music and locality; learned a few of the simplest kindergarten exercises, but seemed to soon reach the limit of his capacity for learning, and did not improve to any extent during the last half of his three years' stay with us, though some especial effort was made by his teacher in his case. Died of membranous croup. The skull and brain were large and well formed The sclerosis was found quite extensively through the cortex, though it had not attained the degree of hardness found in some cases. In the "motor" region only the posterior third of both third frontal gyri were attacked. The diseased areas were not large, though numerous.

66–312.—Adult female; age unknown. No history of nervous disease in the family. A prolonged labor, terminated by the use of some medicine (probably ergot), the child being cyanosed when born. Was taken to Philadelphia when six weeks old, contracting a "severe cold" on the journey, with obstinate constipation and convulsions. The convulsions continued as long as she lived. Profound idiot; mute; right hemiplegia; spent most of her time standing or sitting in a favorite corner mildly waving a dumb-bell in her hand, and occasionally getting up in the night to practice this form of calisthenics. The brain, removed during my absence, in hot weather, unfortunately softened in the lower part. The upper part showed this form of degeneration in places; a block in the left ascending frontal gyrus explaining the right hemiplegia from which she suffered.

89–957 presents an extreme instance of this disease. Born in 1869. There seemed to have been no hereditary influence, except that the father is hardly up to the average mentally, though able to pursue his business as a butcher. Her mind seems an almost perfect blank. Mute; deaf; unable to find her way about, however often she may have traveled the same way before; has to be even led to her own bed. On her admission, food had to be placed in her hand before she would eat. Partially paralyzed in her right leg and left hand. So much of her brain was destroyed by this lesion that a detailed

description would be needlessly long. The "motor regions" were not implicated, with the exception of a small nodule on each side, but the rest of the cortical substance of the hemispheres was so thoroughly diseased that at least two-thirds of their surface was attacked.

This case, with 98–1412, to be described later, demonstrates how life may be preserved, and the animal functions carried on so long as the lower brain is intact.

Another form of sclerosis, in direct contrast with that just described, is marked by shrunken tissue, the fibrous character of its structure, is more liable to be found in localized mass than in disseminated nodules, and is apparently less destructive to the function of the parts implicated unless it has reached an advanced stage.

5-806 has already been described in a previous paper (ALIENIST AND NEUROLOGIST). A case where right hemiplegia with aphasia resulted from two blocks of sclerosis in the left ascending frontal gyrus.

47–1476.—Born 1877. Weighed only three and one-half pounds at birth. Spasms began at twenty months old. Was free from them from 1881 to 1883, when they again began and continued with intervals of about two weeks until her death. Was very slow of comprehension and her memory very defective. Vision defective, having as far as we could ascertain, hemianopsia. A large block of sclerosis was found in the right hemisphere, involving the angular gyrus and encroaching on the second occipital, supermarginal and posterior portions of the first and second temporal gyri. The right hemisphere weighed five ounces less than the left, notwithstanding the fact that she was left-handed.

82–1336.—Was born in 1874. Instrumental labor. Father emotional and silly to the verge of imbecility. Paternal aunt had puerperal mania. The child had whooping cough followed by "brain-fever" at two years of age. Left hemiplegia with epilepsy; has also violent explosions of temper. Learned to recognize simple colors and the alphabet, and could count a little. His ability to learn seemed to stop here. Sight and hearing good. Died of cerebral meningitis in 1889. The shape of the

skull is peculiar; high at the vertex and low in front, with a peculiar flatness of the right fronto-temporal region, as if the head had been subjected to pressure against a level surface. The membranes were strongly adherent over the right hemisphere, and the hemisphere itself shrunken and sclerosed in front of a line drawn parallel with, and about one and one-half inches posterior to the fissure of Rolando, including the tip of the temporal lobe. The left hemisphere weighed eighteen and one-half ounces; the right, only twelve and one-half ounces.

The same lesion was found in 75–1261, who was born in 1872. We have nothing of her early history. Had left hemiplegia; speech slow and labored, but distinct; could understand language and answer simple questions very intelligently; learned to do simple manual work but *could not* learn in school. In this case the entire right hemisphere was shrunken and atrophied.

98–1412 illustrates an extreme case of this disease. Born in 1870. Hemiplegia, with epilepsy, followed a severe burn at one year old. Spasms ceased for some years, to begin again. The father was a periodical drinker. The girl is not capable of receiving either manual or school training. Articulation fair; answers simple questions about herself rather intelligently; is liable to extreme outbreaks of temper on slight provocation; died in 1889. The skull has a depressed appearance on the right side, over the parietal lobe, with a corresponding fullness on the opposite side, as if the skull had been pushed over. The left hemisphere was large and well-formed with the exception of the convolutions forming the medial surface of the tip of the frontal lobe, which were slightly atrophied. The right hemisphere was almost entirely destroyed, a few of the gyri forming the medial surface of the occipital lobe alone retaining any resemblance to normal brain tissue. The remainder of the hemisphere seemed to consist of connective tissue containing cyst-like cavities filled with fluid.

29–1317 is an idiot, whose brain suffers from this lesion in conjunction with a peculiar lack of development of the commissural system. Born in 1876; is a mute idiot. There is no heredity acknowledged by the parents

except that his maternal grandmother died paralyzed. His infirmity is said to date from an attack of scarlet fever when six weeks old (?), accompanied by convulsions and right hemiplegia, which persisted until his death. The commissural system is very deficient. The corpus callosum is only about two-thirds its usual width, ending just in front of the pineal gland. Middle and posterior commissure wanting. There was no optic commissure, a slight protuberance only, existing on the inner side of each optic tract in the usual position of the commissure. Two blocks of sclerosis were found in the left hemisphere, one in the posterior portion, one in the motor region.

56–1146.—Age unknown, about 18 years; there was considerable improvement on entering the institution; became fairly expert in school work, but soon reached a point where further advancement was found impossible. During her later years acquired the habit of eating leaves, sticks and other rubbish unless closely watched. At the autopsy, in the right hemisphere, a small mass of sclerosed tissue included a part of the fusiform and anterior portion of the third occipital gyri. In the left hemisphere, all the convolutions posterior to the fissure of Rolando, except the extremities of the ascending parietal, a small portion of the supramarginal and the superior parietal, and those gyri lying posterior to the parieto-occipital fissure, were shrunken and destroyed. The motor area was curiously spared in the destructive process.

A condition probably closely allied to the first form of sclerosis described, if not identical with it, was found in 103–908. Born in 1867. Had chorea during early childhood; epileptic spasms began in 1876; family history unknown. When he first came to the institution he worked among the school grade of children, but insane periods became so frequent and he was so unruly, that little could be done with him. His deterioration was slow but constant. He gradually lost his power of speech, and died in 1890, of cerebral effusion with convulsion. Both hemispheres were somewhat hardened in the middle portions, notably in the Island of Riel on both sides, which were distinctly sclerosed. In the tip of the right frontal lobe, a number of cavities could be seen, pin-head in size and cylindrical in form. In other places, small

spots are seen under the microscope, in the brain substance, consisting of loose connective tissue and a few small round cells; in other places again, these spots can be resolved into a finely granular material effused into the normal brain substance, having usually a small vessel for a center. Miliary aneurism of the arterioles were occasionally found. Those small foci of degenerative changes were most plentiful in the frontal regions, especially in the vicinity of the Island of Riel on both sides.

99–845.—Came to us without history. Profound mute and knows little except to scream and eat. Is not paralyzed or epileptic, but moves very slowly. The brain, which weighed thirty-five ounces, was seemingly perfect in structure, but unusually firm in consistence. Microscopic examination shows, in the frontal lobe, effusion of small round cells beneath the pia-mater, abundance of the same small cell-elements in the first or non cellular layers of the cortex, and throughout the cortical substance of this region, a great number of the same elements, with few, if any true ganglionic cells. As we pass backward, the cellular elements approach more nearly the normal type, but everywhere the connective tissue cells are more plentiful than in the normal brain.

I have dwelt at considerable length on these various forms of sclerotic changes, because sclerosis is a comparatively rare disease, to show to what extent it may attack the brain without destroying life, and the improbability of great or permanent improvement, where any form of this disease exists.

It is interesting to note, that in this lesion, as in localized atrophy, the frontal and occipital regions suffer more frequently than other parts of the brain. This may be due to the blood supply being less direct, or that these portions of the cerebrum are more recently developed than the middle portions; and hence a greater liability to degenerative changes exists.

General cerebral atrophy was found in only two cases, both demi-microcephalic. The symptoms were general decadence of mental and physical powers until death seemed to come from general inanition. The brain in both cases was shrunken, considerably smaller than the

skull; the gyri smaller than usual and the sulci wider and more open.

97–1663 (colored), age unknown, probably about 14 years. At 3 years old had several spasms. Sight and hearing defective. Nutrition so low that it is difficult to keep his fingers and toes from ulcerating from even moderate exposure to the cold. Inproved in school, though but slowly. Over the first and second left frontal convolutions, the vessels of the membranes are greatly increased, both in number and size, while the cortex below is shrunken and atrophied. The same condition to a considerably less extent was found over the right angular gyrus. A tumor (glioma) occupies nearly the whole of the left occipital lobe, over which the membranes are strongly adherent, both to the surface of the brain and to the skull.

Localized atrophy is usually associated with sclerosis, and requires no lengthy description. In my second paper is an account of a case when atrophy of the frontal lobe resulted from pressure of plates of bone in the dura-mater. In two microcephalic brains it was found at the extremities of both hemispheres, resulting perhaps from pressure of the small skull. When not associated with sclerosis it is as soft, or nearly as soft in consistence as the normal brain tissue, the gyri are not so large as the surrounding convolutions, but do not exhibit the multiplied foldings seen in undeveloped brain.

Non-development is found in several forms. A portion of the cortical substance may be thin, and instead of following the typical arrangement of the fully developed brain, form a number of irregular folds, which may be so small and numerous as to resemble a mass of angle worms. Again, the gyri may be of a normal size and appearance, but show a diminution in number, or absence of ganglionic cells in certain layers. Or, again, the convolutions may begin of normal size and development, but soon diminish and sink beneath the surface of the hemisphere, or perhaps entirely disappear, before acquiring near their normal length.

59–1070, brought us no history. Was probably about 20 years old. Nearly mute. Partially deaf. Was always very expert in using his hands, but it was very difficult for him to learn anything in school aside from manual exercises. Anything relating to figures especially, being entirely beyond his comprehension. He was excitable and insane for some years after puberty. Speech indistinct and vocabulary limited. Brain very large and well formed, showing no deficiency except Broca's convolution, which was very small. In the first temporal gyrus of the left side some degenerative change was found in the white matter. On examining sections from the tip of the right frontal lobe, a light band was seen running through the middle of the gray matter in the stained section. By microscopic examination, the middle layers were found to be almost destitute of true ganglionic cells; such cells as were present being attenuated and poorly formed, while the neuroglia shows a preponderance of connective tissue elements. Vessels normal.

96–1381.—Microcephalic, brain weighing but twenty-eight ounces. Mute. Had but little intelligence. Probably defective hearing. No nervous disease acknowledged in family history. Some spasms during dentition. The arrangement of the convolutions are of the simplest type, and some of them very imperfect in development. The first temporal begins of normal size, but instead of running along the upper border of the temporal lobe, sinks almost immediately into the fissure of Sylvius and disappears. The third frontal on each side is also poorly developed in its posterior half.

88–892.—Born in 1866. Was very ill at eight months old. Profound mute; nearly deaf; but little improvement under training; learned with difficulty plain sewing and sweeping. Skull well formed except small in the frontal region and distinctly hypertrophied. On section, some portions of the brain were found lighter in color than normal, notably the first left temporal gyrus, which is of a pale pink instead of the gray-red of other parts of the cortical substance. Microscopical examination shows an almost complete absence of true cortical cells, with abundance of small granule cells in this region.

In 34–1050, who was completely paralyzed in both legs, partially paralyzed in both arms, profound mute and almost devoid of intelligence; was found an exaggerated

form of this condition. The whole of the anterior and middle portions of the cerebrum exhibited this appearance, the posterior portions appearing to the eye nearly or quite normal. Previous injection with zinc chloride made a microscopic examination impossible.

Of the variety of non-development, where considerable areas fail to attain their normal growth, but form an atypical group of small imperfect convolutions, good examples have been given in former papers.

Hydrocephalus.—The clinical history and pathological features of ordinary hydrocephalus are too well known to require detailed description here, with the exception of one case which presents somewhat unusual features.

53–997 was a dwarf, less than four feet tall; supposed to be about twenty years old. Had excited considerable attention by his memory and ability to recite passages from standard authors and short Latin quotations. His actual knowledge, nevertheless, was very limited. A large quantity of fluid distended the ventricles and lay between the skull and brain. In the ventricular cavity was found a large cyst containing approximately six ounces of fluid. The walls of this cyst were evidently formed by the parts originally forming the roof of the third ventricle, all these parts being wanting except the corpus callosum, which was stretched over the top of the cyst. It had no connection with the lateral ventricles.

Internal hydrocephalus, with its destructive effects, have been so exhaustively described by the late Dr. H. M. Knight, in a paper before this Association, in 1879, that I can add nothing to what he has written. We found but one case where this condition existed, without compensatory distension of the skull, with most destructive effect on the entire cerebral function.

Microcephalic brains show the result of two entirely different conditions; when premature closure of the sutures checks the active growth of the contained brain, and when the skull seems to stop its growth simply because the brain, from some cause, has ceased its growth, and the skull no longer receives the stimulus of the growing

organ within. This same effect is seen to a limited extent in cases of hemiplegia, where a portion of the brain has been destroyed by infantile disease, the portion of the skull over the affected tissue showing a marked flattening.

The first variety is well shown in 35–1121, a mute idiot, paralyzed in both lower extremities; born in 1880. There is a strong tendency to phthisis in the mother's family, where of twelve first cousins, ten have died of this disease. There is no history of nervous disease except that the maternal grandmother was "very nervous" at times. On opening the skull (which was very thin) the brain was found so firmly compressed in the skull case that the fissures were seen only as narrow lines, the convolutions being pressed together so firmly as to obliterate the usual depression marking the sulci.

Illustrating the effect of extensive hemorrhage in infancy, which failed to cause death, we have 26–576. When seven months old was dropped by her nurse, striking on her head. The fontanelle bulged immediately. Convulsions followed and never altogether ceased until her death several years after. She was an excitable idiot, mute, and walked on the ball of her foot; was fond of lying on her side with her knees drawn up, with her hands slowly swinging past her eyes; spasms of hystero-epileptoid character; very sensitive to changes of disorder or change of place, and exceedingly irritable. At the autopsy was found much thickening of the frontal bones; strong adhesion of the membranes to the skull and to the brain; thickening of the membranes over the right parietal lobe. The principal lesion was in the frontal lobes, more particularly in the left, where the cortical substance was shrunken and discolored. Microscopic examination demonstrated this cortical substance replaced by firm connective tissue, with blood crystals thickly scattered through the mass. The hemorrhage from the old injury had completely destroyed the normal structure and then by its absorption, left this cicatricial mass.

94–915 is one of a class, not less interesting, but much less satisfactory to the pathologist than those previously described. Born in 1867. Was very ill for three weeks after birth. Father and mother both of nervous temper-

ament. Considerable insanity and some epilepsy among father's relations. Was vaccinated at six months old, spasms beginning four days after that event. From that time until his death, in 1889, his course has been steadily downward. Speech very imperfect; sight, hearing and general sensation defective; walk and prehension faulty; in fact, a general decline of all powers, physical and mental. The brain was of good size, well formed, and no change, macroscopic or microscopic, was found. The only explanation seemed to be that the gradual destruction of functional activity was due to trophic changes, induced perhaps by disordered circulation, the result of frequent and severe spasm.

Five cases of "Mongolian idiocy" are included. In all these the brains are of good size for imbecile brains, the pons and medulla alone being very small, weighing in each case about one-half ounce, whereas the usual weight is nearly twice as much. The cerebral vessels are inclined to be much thinner than in healthy brains. In some places, evidences of old arteritis were discovered. In one instance the vessels showed a tendency to form angiomatous groups, four or five different vessels in a bunch, having somewhat the appearance of erectile tissue. The defective nutrition and circulation of these children lead one to suspect that the defective condition of the vessels may be a general condition. From the small size of the pons and medulla in every instance, there seems to be a strong probability that the low nutrition, and possibly the other anatomical peculiarities of this group, may be due to the imperfect development or absence of certain cell-groups in this region.

There are also included three cases of pseudo hypertrophic muscular paralysis, described at length by Drs. Kerlin and Mills in the "Transactions of the American Medical Association" of 1880. A detailed description of one case is given in our "Proceedings" of 1886, where degenerative changes were found not only in the cord, but in the brain itself. In the other two brothers, who have died since, the examination of the cord and brain

gave negative results, though the cords were examined carefully throughout their length. The cause of the atrophic change seems inherent in the muscle, and the lesions found in the first case examined, were probably from some intercurrent affection. In all these cases the bones were found unusually dense and hard, and in two, hypertrophy of the skull existed. The change in the muscle seemed to be a swelling of the fibers, followed by atrophy, the fibers retaining, for the most part, their transverse striation until a very advanced stage of atrophy was reached, the place of the fibers being taken, first, by fat cells, afterward, by connective tissue.

In seventy five cases, or in all where injection of zinc chloride, or extensive destruction of the brain substance made weighing valueless, the brain was carefully weighed. The average weight was 38.3 ounces. In fourteen cases, the weight was below 30 ounces. Thickening of the skull to an extent to constitute hypertrophy was found in eight instances, while in eight, the skull was usually thin, not including cases where there was distention from hydrocephalus.

The 100 cases may be summarized as follows: Sclerosis with atrophy, 12; sclerose tuberense, 6; diffuse sclerotic change, 7; degenerative changes in vessels, ganglionic cells or medullary substance, not constituting true sclerosis, 15; hydrocephalic, 5; general cerebral atrophy, 2; non-development in various forms, 16; infantile hemorrhage, 1; extensive adhesion of membranes from old meningitis, 3; angiomatous condition of cerebral vessels (with degenerative changes), 1; glioma (with sclerosis), 1; porencephalous (with non-development), 1; of thirty-one cases where actual disease or imperfect development of the brain proper was not demonstrated, there was hypertrophy of the skull, 6; acute softening (recent), 2; demi-microcephalic, 2; when the brain was above usual weight, but the convolutions large and very simple in their arrangement, 2.

In closing, I would briefly call attention to the com-

paratively large number of cases of actual cerebral disease, in contrast with the relatively small number where imperfect development seems the causative agent of the mental defect. With this fact, we see a corresponding improbability of a large majority of these cases ever attaining a full mental development. That a large majority of them can be greatly improved, we have daily evidence in our schools. Children inheriting inactive brain from parents below the usual average of intelligence, without history of infantile disease or epilepsy, seem the most promising of general and permanent improvement. The brain diseases of infancy, on the other hand, are peculiarly destructive, and not only leave a permanent injury to the brain, preventing its growth and development, but are liable, from the irritation they leave, to kindle the epileptic habit with its destructive effects. Realizing these facts, the physician should be more cautious in giving the customary diagnosis of "Arrested development that special training will remove," thereby arousing hopes in the minds of the parents that can only result in disappointment.

In closing, I desire to acknowledge my indebtedness to Dr. I. N. Kerlin, not only for the clinical and school histories of the cases here described, but also for many valuable hints in conducting this work.

A Case of Neuritis of the Viscera.

By John Ferguson, M. A., M. D., L. R. C. P.,
Demonstrator of Anatomy, University of Toronto.

THERE is perhaps no field of Medicine in which greater difficulties are to be found than in dealing with some of the cases of obscure and persistent pain as it is often met with in the abdominal region. Much has been written on the subject of visceral neuralgia, its causes and treatment; but nothing on the condition of visceral neuritis. On the subject of multiple neuritis there is now a good deal of literature. Some valuable work has been done by Leyden, Buzzard, Seguin, Dana, Gowers, and I may mention several articles by myself in "Peripheral Paraplegia," "Ascending Paralysis," "Pseudo-Tabes," etc. This case I am now dealing with happened last winter during the epidemic of *la grippe*. A short time after the attack of influenza had passed off, the patient, a lady in her fortieth year, began to complain of paroxysms of pain of a most agonizing character. These attacks might occur at any hour in the day; but were generally most likely, and most severe, towards morning. Despite all efforts to relieve the patient, the case gradually grew worse, and she died after a period of great suffering lasting ten weeks.

The examination of the nerves and ganglia throughout the abdomen showed them to be in a highly inflamed condition. Under the microscope there was marked degeneration in some of the nerve tissue.

Here we have a sufficient explanation of the violence of the pain suffered, and of the stubborn and incurable nature of the illness. There is no reason why there may not be an attack of neuritis affecting the viscera, causing some of the obscure cases we meet with. Neuritis of the peripheral nerves is now a well established condition. It is hoped that this case may induce others to look for examples of neuritis in the abdominal and thoracic cavities.

Heart Disease in Insanity and a Case of Panphobia.

By S. V. Clevenger, M. D., Chicago, Ill.,

Fellow of the Chicago Academy of Medicine.

Morel's assertion, that while the brain is always the seat of the insanity, it is not always the seat of its cause, is warranted by our failure, in most instances, to discover cerebral lesions that will definitely account for the mental changes, and by the fact that visceral disturbances frequently antedate and accompany mental derangement.

The relations of heart disease to insanity have, in a few instances, been clearly made out, but I am not aware that the subject has been studied as carefully as its importance warrants, and therefore, make this contribution to essays on the topic, regretting that want of time prevents me from carrying explorations further.

Burman ("West Riding Reports," 1873) says: "There is a remarkable relation between heart disease and insanity, in that co-existing with the gradual but steady annual increase of insanity, there has been a similar and more than *pari passu* increase of heart disease. An examination into the state of the heart in the insane, as found after death and during life, shows that heart disease in its various forms is exceedingly common amongst them and presumably much more frequently met with in asylums than out of them."

Bucknill presumes heart disease to be common among the insane. Griesinger at an earlier period thought there was but "average frequency," but previously, Esquirel claimed it existed in one-fiftieth of the insane; Boyle, one-sixth; Calmeil, one-third; Guslain, one-sixth.

Dr. C. Hood ("Statistics of Bethlehem"), in 1838, asserted that heart disease at that institution was six

times more prevalent than among the sane population. Dr. Sutherland, in his Croonian Lectures, states that of forty patients, the heart was healthy in only eight.

Blandford does not connect the morbid appearances of the heart, as found on the *post-mortem* table, with the outbreak of insanity, and considers that they are the result of long-continued, violent and irregular action of the organ during many years. Dickson thinks that inferences are apt to be fallacious on this point, as a large proportion of the melancholiacs whose malady is traceable to heart disease recover.

In cases of rheumatism, with heart disease and melancholia, the difficulty is to determine whether the rheumatism itself did not cause both the heart trouble and the insanity.

Mitral imperfections, Dickson claims, sets up a transient melancholia, but aortic disease produces a more permanent form of the disorder.

Winslow says that "considering the close organic sympathy between the heart and brain it may, *a priori*, be inferred that in all affections of the great nervous centers the cardiac functions would almost invariably exhibit marked deviations from a normal state."

In ninety-two cases of chronic mania, dissected by Falret, twenty exhibited "diverse heart lesions associated with chronic alterations of the meninges and cerebrum."

Morel observes that affections of the heart enter largely into the etiology of mental affections, and details a case of paroxysmal mania, who imagined that an animal was in his chest devouring his heart. Autopsy showed cardiac hypertrophy with valvular lesion interfering with the free passage of the blood through the auriculo-ventricular orifice. He says, "I have observed among such patients periodical return of strange ideas, hypochrondiacal sensations, and often spectral hallucinations, which arose with the increase of the impediment to the circulation and the cerebral congestion which is the

consequence of it. These hallucinations are usually of a terrifying nature."

Griesinger criticises the findings at the Colditz Asylum by Voppel (16 per cent.) as too high, regarded causatively, as there were a great number of aged patients, and minute changes were noted. The great majority of lesions were probably developed during the course of the insanity. He also notes that in states of exaltation cardiac murmurs, especially of the aortic valves, are frequent without any valvular deficiency.

Savage recognizes the problematical relationship in question and mentions both mania and melancholia as arising from similar kinds of heart disease.

Mickle records that in paretic dementia one or both valves of the left side of the heart are altered in about one-third.

Kiernan discusses the mental relations of heart disease, in this journal for April, 1890, noting that death from heart disease is often preceded by high spirits, and affirms four relations existing between bodily and mental diseases, to the effect that one may cause or modify the other.

He thinks that types of insanity arising from cardiac disease are characterized by suspicion and emotional mobility. Other writers speak of excitement, loquacity, followed by prolonged somnolence, periodical mental disturbance with dyspnœa and respiratory anxiety; irritability, fever, depression, taciturnity. D'Astors regards aortic disease as causing exaggerated susceptibility; and mitral lesions, depressed conditions.

During the past year I have seen a case of panphobia daily, and his peculiarities led me to watch and question him. He constantly wore an expression of half surprise, half fright, and seemed to be very fidgety. At my request he finally wrote out his case as follows:

In referring to this case it may be well to go back briefly to the facts relative to birth and lineage, which may affect the value of the testimony rendered.

My family is naturally a long-lived one. My grandfather died at 85, and my father is still in the enjoyment of vigorous health at 75.

Shortly before my birth my mother lost two much-beloved daughters. Their death made a lasting impression upon her, and she always maintained that it was the pre-natal influence resulting from this loss that produced the melancholy turn of temperament which has always characterized me.

However that may be, my disposition has been gloomy—almost hypochondriacal—since early childhood.

Up to my tenth year I was a robust child. In that year I had an attack of measles, and from that time my ill health may be said to date. Six months after this I was attacked with what my doctor (N. F. Cooke), called "inflammation of the pericardium," and for some weeks was in a dangerous condition.

After this my physical condition remained unfavorable. My figure was spare, bones small, limbs skinny and face and skin very sallow, like a scrofulous patient.

It was in my sixteenth year that an episode occurred which proved the foundation of all my subsequent sufferings.

In that year, while at boarding school, an alarm of fire was given in the dormitory one night, and I was hurried out half-awake into the open air. The sudden shock and excitement brought on a severe attack of palpitation of the heart, which lasted for some time. It was after this that a morbid feeling of dread of sudden death began to grow upon me, which soon intruded upon all my duties and pleasures, and rendered both to a certain extent ineffective.

At the age of sixteen I entered college. My health during the four years of my stay there was fairly good, though the restless, nervous feeling kept gradually growing upon me. Upon leaving there I became affected with a form of lung trouble which, as my physician said, threatened to develop into consumption. Acting upon his advice I went West to reside.

At twenty-two I married. My health at that time was considerably improved so far as the lung trouble was concerned, but my nervous system was badly unstrung.

During eight years of married life, in which time I became the father of three children, this trouble developed to its fullest extent, and since that time it has continued without much variation or increase.

The first noticeable symptoms which manifested themselves were extreme nervous irritability, sleeplessness and loss of appetite. Any little excitement would throw me into a state of almost frenzy, so completely would I be overcome. Palpitation, spasmodic breathing, dilation of the eyes and nostrils, convulsive movements of the muscles, difficulty in articulation, etc., were the more prominent features. A sense of impending danger seemed ever present, spoiling every pleasure, thwarting every ambition. The dread of sudden death which was at first marked, gradually subsided, giving way more to a feeling of dread —not of dying suddenly—but of doing so under peculiar circumstances or away from home. I became morbidly sensitive about being brought

into close contact with any large number of people. Finding myself in the midst of a large gathering would inspire a feeling of terror on my part which could be relieved in but one way—by getting away from the spot as soon as possible. Acting on this impulse I have left churches, theaters, even funerals, simply from an utter inability to control myself to stay it out. For ten years I have not been to church, to a theater, a political gathering or any form of popular meeting, except where I could remain in the back-ground, with means of egress convenient. Even at my mother's funeral, when it would be supposed that everything else would be subordinated to the impulses of natural affection, I was utterly unable to bring myself to sit with the other members of the family in the front of the church. Not only has this unfortunate trait deprived me of an immense amount of pleasure and benefit, but it has also been a matter of considerable expense. More than once I have gotten off a crowded railway train half-way to the station for which I was bound, merely from my inability to stand the jostling and confusion incident to the occasion. Times more than I can recall I have gone into restaurants or dining-rooms, ordered a meal and left it untouched, impelled by my desire to escape the crowd. Times more than I can recall I have bought tickets to theaters, concerts, fairs or what not, merely to give them away when the critical moment arrived and I realized the impossibility of my facing the throng with composure. To illustrate: I remember once going from Chicago to Omaha with my little boy. On entering the sleeper I found it crowded. I at once became ill at ease. As the train moved on I became more and more desperate, and finally appealed to the conductor to know if I could possibly procure a section by myself. There was nothing eligible but a state-room. That I took, paying $10 extra for it. Had it been $100, and I had the money, I should have bought it without once counting the cost. "Necessity knows no law;" and these crises cause necessities of the strongest kind with me.

Along with this peculiarity, I suffered from one which was almost diametrically its opposite. I dreaded being alone, almost as much as being in a crowd. This feeling, however, did not occur nearly as frequently as the other, and as it has almost always been comparatively easy to relieve it, it has never occasioned much distress.

The dread or feeling of terror inspired by being in a high or exposed place is one that many people have experienced, and though it has entailed much suffering on my part, it perhaps does not need amplification here. But the opposite of this feeling as developed in me, is peculiar. I cannot bear to look up at any unusually lofty object without feeling a sense of giddiness, amounting sometimes almost to faintness. More than once, of an evening, gazing at the moon or the stars, I have felt myself reel and almost fall as a realizing sense of the vastness of space came over me, and it has seemed as though, annihilating gravity and all earthly laws, I should be drawn away bodily and translated to some other sphere.

Another phase of this disorder has been what the learned doctor at whose instance I pen these notes calls "Agoraphobia," or a fear of

open spaces. This has been at times very pronounced. Many a time I have slunk up alleys instead of keeping on the broad streets, and often have I walked long distances—perhaps a mile—to avoid crossing some pasture or open square, even when it was a matter of moment to me to save all the time possible. The predominating impulse is to always have something within reach to steady myself by in case of giddiness. This feeling is at times so strong that even when on a steamboat or other vessel, I cannot bear to look across any wide expanse of water, feeling almost impelled to jump in out of sheer desperation.

There are countless minor phases of this disorder, applying to the ordinary habits of life, which are perhaps quite as curious, but not so distressing, and it is hardly worth while to consume space in enumerating them.

The detriment that this malady has been to me, aside from the physical and mental distress, has been almost incalculable. It has throttled all ambition, killed all personal pride, spoiled every pleasure. To my acquaintances I have been a veritable puzzle. A thing of this kind, cannot, of course, be explained to every individual who may chance to notice my idiosyncrasies. One cannot wear his heart upon his sleeve all the time, and with a very few exceptions I have never attempted to make people understand what the trouble was, for I realized how hopeless the task of making them comprehend the matter sufficiently to enlist their sympathy. Most people with whom I have been brought into contact have called me a "crank," and intimated that I was irremediably crazy. Others have insinuated that the memory of some dark crime committed in early life, was the cause of these personal peculiarities. Others still have attributed it all to natural indolence and a desire to shirk work and the ordinary duties of life. Perhaps they are all right; perhaps all wrong—I merely know that it has ruined all my prospects in life, and that, endowed by nature with a mind more than usually quick and retentive, I find myself now, at an age when the opportunities of youth have pretty well slipped by, forced to contemplate a future which bears no prospect of pleasure or profit.

As far as I can effect a diagnosis of my case, as a layman, I should say that the trouble lies chiefly in a chronic weakness of the nerves surrounding the heart. Over this weakness the will seems to have no control. At times buoyed up by stimulants or temporary excitement, I have faced situations which ordinarily would have filled me with extreme trepidation; but as a rule I have to yield or suffer the consequences. What those consequences would be, I do not know. I have sometimes thought that if I could once pass through a spell of syncope and find myself all right after it, that would give me the necessary courage and assurance to resist further attacks of this trouble. But that is only a conjecture.

The present condition of his heart is one of irregularity and rapidity without organic changes. We find this same rapid heart at times in hysteria, agitated melancholia,

mania, hypochondria, in Erichsen's spinal concussion disease, in morbus Basedowii, and in innumerable cases as a congenital peculiarity without any apparent associated or dependent defect. While examining a case of atheromatous insanity (so named by Voisin), formerly known as primary mental deterioration, I found a pulse of 120, but was told by Dr. Rohr, who brought the patient to me, that this acceleration had existed many years before the insanity appeared.

Patrick Kady, a Chicago blacksmith, entertained hallucinations that led him to shoot and kill a priest named Barrett, a stranger to him. In the jail he rapidly passed into terminal dementia with general œdematous appearance. His heart was dilated and turbulent, and at that time and for months previous to the murder, he had spoken of his heart feeling "cold" and consulted several physicians, making the same complaint. But Kady's insanity was gradually developing many years previous to his complaining of the heart trouble.

For three years I have treated a case of recurrent melancholia, an intelligent German, who recognizes his auditory hallucinations as such, but who struggles in vain against the depression. He invariably has rapid heart action with his apprehensive feelings, and twice I have cut short his attacks by large doses of digitalis. I regard the cardiac rapidity as a mere accompaniment of the general circulatory disturbance in his case, and doubtless its origin is in the pneumogastric centers, but when this rapid action is antagonized by digitalis, invariably it improves his condition, and, as said before, twice it has stopped the progress of the mental ailment. In the partially successful instances in his case, other visceral difficulties demanded relief, and I was furnished with an instructive proof that in the predisposed (as he was) exciting causes are not single, and that the golden rule is to put the body in the best working order regardless as to whether an imperfection is etiological, a result or an accompaniment.

At one time a hepatic tonic, at another, catharsis, next, hæmatics and strychnia, and finally in one instance, a sedative ended his paroxysms.

Routine drugging would be worse than useless here, and physiological treatment invariably succeeded. The worst attack he had was complicated or started by *la grippe.*

Digitalis seemed to be ineffective in the panphobia case, but alcoholics afforded him so much comfort that he was inclined to indulge too much.

A case of ascending, or the spinal type, of paretic dementia died two months ago. At the beginning of his mental failure, two years ago, sulfonal seemed to bring about a remission that lasted several months. His entire family was neurotic and the majority of his immediate relatives, including himself, had "heart disease," the precise form of which I have not learned. Some of his relatives had extensive capillary ruptures and their vaso-motor conditions generally were defective. So I would infer in this instance, and as probably occurring in many others, that the predisposition to insanity may consist in an imperfect vascular control, and the heart disease is merely one form of the general condition.

While enjoying a visit at Dr. McBride's splendid sanitarium near Milwaukee, last year, an old gentleman was brought there who had most peculiar delusions. He would place his shoes and stockings on the mantel and hang his clothing as high as possible, stating that his bowels were about to move and he would nearly fill the room with excrement. It is well known that subjective sensations, whether of central or peripheral origin, are the basis of hallucinations, and it would be natural to suppose that some feeling of over-distended intestines suggested the insane idea. Dr. Nicholas Senn made a physical exploration and found mitral stenosis.

In insufficiency and constricture of the mitral valve the pulmonary circulation is overloaded at first, but, later, as the hypertrophy of the right ventricle fails to

compensate, the hepatic, mesenteric and hemorrhoidal veins are engorged, previous to the general dropsy that ends the suffering. Tenesmus and the naturally consequent feeling of overloaded intestines could easily be interpreted by the insane mind, as it was in this instance, as an enormous accumulation of feces.

As atheroma leads to mitral lesions the heart disease in this case may have been but an episode in the course of the insanity, but adding new features to it.

From considerations such as the foregoing I am constrained to believe in the correctness of Griesinger's *dictum* of nearly fifty years ago that "diseases of the heart do not seem to act as causes of insanity with any special frequency."

Spitzka calls attention to the universal prevalence of heart disease unassociated with insanity, and my conclusions in general are as follows:

Heart disease is rarely the sole cause of insanity.

Its influence upon the mental apparatus would be through the quantitative and qualitative changes effected in the blood supply.

Functional cardiac disturbances are very frequent in insanity and their persistence may readily lead to organic changes.

In the majority of cases both functional and organic heart derangements in insanity are products or accompaniments of the mental or bodily conditions.

Such heart diseases react upon and complicate the insanity.

In those predisposed to insanity heart disease could (if uncompensated) act as an exciting cause through disturbances in the blood supply to the viscera or brain.

The Psychopathic Sequences of Hereditary Alcoholic Entailment.*

By C. H. Hughes, M. D., St. Louis,

Professor of Psychiatry and Neurology, Marion Sims Medical College of Medicine, Late Superintendent of the Missouri State Lunatic Asylum No. 1, Etc.

NOTHING in neuropathology is now plainer than the retrograde heredity of chronic alcoholics. The alcoholic poison interferes with the highly organized physiological movements of the psychical centers, arrests and perverts the complex activities of the cerebral cortex and begins a decadent and perverted neural metamorphosis that goes on from one stage of instability to another, until the final ending of all neural instability is reached (unless fortuitously arrested) in dementia or imbecility and death, when even perverted neural force can no longer be evolved. The evolution of the cerebro-psychical centers thus arrested or perverted, ends in final dissolution and extinction of type.

The neuropathic thrall of entailed alcoholism is no new theme to neurologists. It was familiar to Benjamin Rush and the researches of Morel in the field of neuropathic degeneracy sequent to ancestral alcoholic excess, have been so often affirmed and reaffirmed by credible medical testimony that no doubt now remains in the medical mind of the power of excessive ancestral alcoholic indulgence to pervert neuro-psychic function in the descendants of victims of this vicious disease.

We need not dispute the point as to whether alcoholism is a vice or disease, for it is and it may be both or either, and whether it in the beginning be one or both its ending is always in disease, which is either the beginning or continuance of a transmitted neuropathic or neuro-psychopathic heritage.

* Read before the Mississippi Valley Medical Association, at Louisville, Ky., October 9th, 1890.

If the first generation, as Morel has observed, shows immorality, alcoholic excess and brutual degradation, the second one will usually show, as he also observed, hereditary drunkenness, maniacal attacks and general paralysis or some similar psychopathic affection. The third generation may show sobriety, but instead of the transmitted drunkenness, the hereditary neuropathic perversion will probably reveal itself as Morel saw it, in hypochondria, mania, lypemania and tendency to homicide and suicide; and we shall see in the fourth and after-coming generations feeble intelligence, stupidity, early insanity and the beginning of the end of the family in extinction.

All alienists have confirmed this observation of Morel, and the fatal heritage of chronic alcoholic toxhæmia is proven upon those living within the walls of asylums for the insane the world over, and in every walk of life without, and upon the cadavers of those who have died under the power of this neuro-toxic force. We no longer need the extensive clinical observations of Magnan nor the later pathological researches of Bevan Lewis for proof. The diseased arterioles, the granular degenerations of the nerve cells, pericellular and perivascular nuclei proliferation, aneurismal dilatations and exudative and indurative cerebral changes, are too familiar now to be longer doubted and witnesses too many to be here enumerated, embracing all who have clinically studied inebriety, attest the fact that the habitual long-continued use of alcohol as a beverage in excessive quantity in one generation makes an indelible impress upon the nerve stability of the generations that follow.

It has the undoubted power of engendering neuropathic and psychopathic conditions *directly* in the individual, besides a great number of extra-neural morbid conditions, as the oft-observed and no longer doubted delirium tremens, epilepsy, insanity and imbecility, paralysis and the neuritides of drunkards show, and the morbid entailments of alcoholic excess do not stop with the individual as we have seen. They pass over in greater force to his

descendants. This is the gospel of science. These morbid endowments of the drink habit are more apparent in the drunkard's progeny, for the reason that his children come into the world dowered with less power of neurotic resistance to the depressing and perverting assaults of alcohol and its compounds upon the integrity of the ganglion cells of the cerebrum and the nervous centers of the whole cerebro-spinal axis and sympathetic system.

By reason of a better organic heritage and the greater inherent power of vital resistance, the drinking person may show but little of the inroads his alcoholic excesses are making upon the physiological soundness of his cerebro-spinal and ganglionic centers. An occasional or single epileptic seizure during a debauch, or none at all, during a life given to drink, some perversions of disposition or mental depression, or a day or two of trance following a prolonged spree once or twice in a life-time, or none of these evidences of cerebro-psychical damage may so markedly appear. (The subject of alcoholic trance is too extensive to be treated here as its forensic merits require. We content ourself now with a simple note. *Vide finis.*)

None of these positive and more directly perceptible consequences of alcoholic damage may appear directly in the individual. He may go through life moderately full of alcohol, able to attend in a fairly good manner to the routine demands of his business, to be cut off prematurely under some slight extra organic strain (for one of his extraordinary hereditary endowment of nerve resistance), by an apoplexy—cerebral or pulmonary—which another less strongly endowed for resistance by nature, would have withstood. His ganglionic centers fail him in some vital crisis, and the "silver cord is loosed" forever.

The nerve mechanism, which never escapes in the habitual or periodic excessive drinker, but more especially in the regular so-called moderate social drinker (who never sprees, though seldom refuses when asked to drink, who takes his regular evening night-cap and morning eye-

opener and tri-daily appetizer) is the vasomotor system. This failure causes the pneumoniac to die from an attack of lung fever of no greater severity of causation than that of which his non-drinking fellow in the next bed promptly recovers. He may die prematurely of an over-worked kidney or an over-taxed liver, by reason of ganglionic paralysis (and I believe that over-distension of the renal circulation from the general vascular hyperæmia of over-brain-strain and alcoholic stimulation combined, are the remote causative factors of Bright's disease), and neither he nor his friends may think that alcohol has done him harm.

But look at the drinking man's children! He may have been himself a very proper and apparently healthy citizen, beginning in early life a regular business, and having acquired and filled a regular and honorable business place in the world, and never seriously sick till the last acute illness that suddenly carries him off before his physiologically appointed time.

Why is one child an idiot or imbecile, another erratic, moody, violent, visionary, melancholic, or insane, epileptic choreic, or suddenly criminal despite the best of training and environment, especially among his latest offspring, while only the children born of his loins earlier in life, when alcoholic excess had made no organic impress upon him, are ordinarily healthy in mind and body?

The habitual disturbances of organic function—morbid physiological exaltation and reactionary morbid depression, through increased vascular relaxation and consequent capillary congestion may not materially affect the integrity of function in the matured cells of the psychical centers of the parent of sober lineage, so as to markedly modify their matured and long-established habit of acting, but in the drunkard's child who starts unstably endowed by hereditary neuropathic entailment resulting from an ancestor's alcoholic excess, the resistance power of the parent or parents in early life is not in the child's organism. He is a step lower than his father or mother, or

both, if they were habitual drinkers, in the scale of organic degradation and has in consequence feebler resistance to the assaults, not only of alcohol from within, but of adverse environments from without, and they reveal this hereditary organic degradation in erratic actions, morbid, insane and criminal conduct—conduct which in them is always the offspring in whole or in part, of disease—disease within. Upon them, consequently, influences without their organisms, resisted by others, have an overpowering force. Their environment leads them irresistibly into crime, like the extraneous circumstances which cause in them disease their parents had not shown, and crime their parents would have resisted.

The drunkard's child's crime is not all his voluntary crime, nor his vice-engendered disease, all disease of his own making. His father, or his father's father or mother may have deliberately chosen that which, with all its voluntary seeming in the boy, is become to him an inexorable morbid fate, appearing as immoral conduct. "The fathers have eaten sour grapes, and the children's teeth are set on edge."

With this too cursory preliminary review of what we know of the hereditary neurotic enthrallment of alcohol, we record an interesting hypothetical case, which we will suppose to cover the facts in an important medico-legal record of entailed alcoholic disease and crime perpetrated under its fatal sway.

HYPOTHETICAL CASE.

Suppose a young man approaching his majority, naturally kind of heart, not reared in crime nor in the slums of a city's poverty quarters, but in comfortable circumstances, and fairly educated among correct people, commits an unprovoked murder of one of the dearest and nearest of his friends. In his family the following abnormal traits appear: On the maternal side a grandfather is a man of excess in eating, drinking, etc.; inebriate and melancholy, and he dies of apoplexy. An only son survives him long enough

to develop inebriety and die of drink in his youth. A brother is like himself, and dies a drunkard. Sisters and cousins in varying degrees, according to environment, exhibit the same failing. A grandmother at an early age drank liquor to excess, and died prematurely in consequence of excessive drink. All the sons of the grandmother's sisters died young in consequence of drink. Of the remaining ancestry of this alcohol-tainted organism, one uncle was, from early youth, addicted to alcoholic indulgence, his thirst for drink becoming finally insatiable, and he died of delirium tremens in early manhood, after previous attacks of acute alcoholic insanity. Another uncle was also addicted, from his early youth, to the use of alcohol to inebriety, and final melancholia and insanity with delusions of dread and suspicion. Several sisters of these two men were victims of the hereditary failing, among them the mother of the supposed young man we are considering. The boy's father, too, was in early life, before the boy's birth, an intemperate man, and the boy, himself was from early puberty intemperate, unstable and choreic and had suffered in childhood from a physical shock to his nervous system, caused by a violent fall. This young man in question, when under the influence of liquor, was a markedly changed man, and when the time of one of his periodically recurring sprees would come around, he was likewise very different from his natural self, being moody, listless, drowsy and melancholy; and after indulging in his inordinate craving and unnatural appetite, he would become exhilirated, reckless of danger, excessively cheerful at times, and extremely violent towards, and suspicious of his best friend, filled with morbid fears and dreads and suspicions. When sober he was nervous, restless and unhappy, and whenever he got a taste of liquor he would invariably drink to excess —drinking to exhaustion, prostration and illness in consequence of his excesses. Suppose for five or ten years the life of such a person was almost one continual succession of sprees—suppose such a man after such a life,

and at the close of a several weeks' prolonged spree, takes the life of his best friend by manual violence while struggling to get money from this friend who had refused it, and with the aid of an accomplice takes money, jewelry and other valuables from his person, pawns some of the things for liquor, making no attempt to escape, and not appearing to remember or realize the enormity of the crime committed, remains in the neighborhood of the murder intoxicated until arrested, remembering the fact of the robbery, but not believing the party robbed and maltreated was dead or seriously injured.

This is a common kind of inebriate crime. This picture would answer for the ordinary portraiture of the avèrage inebriate criminal arraigned in our courts of justice. It is of necessity so drawn as not to describe personal cases that have come under my professional care, but it is true to inebriate nature, as I have seen it all too pitiably and painfully portrayed, and will answer well for a composite picture of morbid, as contradistinguished from purely immoral inebriety and crime. The picture is not overdrawn, but is faithfully true to nature.

I have purposely put in a criminal motive in the above hypothesis that the natural semblance to crime may appear just as it appears in many cases of insanity. The inebriate and the insane person act, unless totally demented, from motive more or less apparent, but the hidden springs of human conduct in both are different from those in the rational and healthy mind. A different combination of morbid influences, ancestral and immediate, in the nervous organism of the chronic inebriate or the periodic inebriate unites with his environment in the drink-enthralled man, from that which influences and determines ordinary human conduct in sane and temperate men.

1st. Assuming the above hypothetical case to be true, what would be your judgment as to the existence or non-existence of hereditary alcoholic degeneracy and impairment of the brain, and the existence or non-existence of dipsomania, or involuntary and resistless impulse to drink

alcoholic liquors to excess, in the case of the supposed youth, and degree of irresponsibility from drink?

2d. What was the mental condition of the supposed person when he committed this unlawful deed?

3d. What is the effect on the mind and on the will of such an inherited taint, united with the state of chronic alcoholism, as in the case of such a supposed youth?

Such, with more or less completeness of specific detail, is the character of the hypothetical case and interrogatories, of late years propounded in our courts to the expert in psychiatry, for the neuropathic entailments of chronic ancestral alcoholism. Thanks to an enlightened judiciary in some of the American States, aided by the wise and judicious efforts of our medico-legal societies, inebriety has become a recognized extenuation and often complete and just excuse for crime perpetrated under its potent and often resistless morbid influence, and the following or something like them, are still the customary interrogatories propounded, *pro forma*, by the counsel for the State:

1st. Is it your opinion that such a supposed person was unable to distinguish between right and wrong?

Or, perchance, the more enlightened and just interrogatory like the following is offered by the State, and "Will you say that a person so affected could not tell that an act which he committed was wrong, or if conscious, that it was wrong—is it your opinion *that he was incapable of resisting the impulse to commit it*, by reason of disease hereditarily entailed or acquired?"

It were fortunate for the unfortunate victim of the faulty and imperiously unstable neuropathic heritage of long-continued or hereditarily transmitted alcoholic indulgence, if a wise, humane and considerate counsel and court secure such just instructions in such clear conformity with the facts of clinical observation and experience as the last interrogatory would warrant, for inebriety either in its periodic or continuous forms is a disease, as much so as the recognized and acknowledged phases of

insanity, epilepsy, idiocy and imbecility it both directly and indirectly engenders, and while in considering it in its medico-legal relations, we have also to consider the accompanying factor of a once normal volition, we have in the inebriate a mind and will always more or less modified, perverted, deranged by disease. Alcohol being itself a directly toxic agent, in its influence on the brain and allied nervous system as well as potently poisonous to the blood itself in any considerable quantity, and especially so as all experience proves, when long continued, in excess, in either the individual or his ancestors.

It is, indeed, a strange phenomenon of the human mind in its forensic relations that an agent which the world recognizes and acknowledges as the parent of pauperism, insanity and crime, and the chief direct or indirect populator of penal, eleemosynary and correctional institutions, and the proven cause of so much disease, misery and death, should be held responsible to the extent it is before our judicial tribunals, when the hapless and often hopeless and helpless victims of its vicious power are arraigned to answer for crime committed through its influence over their involuntarily enslaved organisms — organisms often prenatally predestined to pathological perversion (as most of the unfortunate inmates of asylums for the insane are organically predetermined to an aberrant course of life conduct), through the alcoholic excesses or other neuropathic disorders of ancestors, or through a precocious drink-craving, however engendered, whether ancestrally or self-acquired, and prematurely and excessively indulged, to the harm of the delicate machinery of the brain.

The force of physiological habit is recognized in all of our dealings with men. Why, then, should courts ignore the power of that neuropathic thralldom which alcohol undoubtedly engenders in certain individuals, to their harm and the harm of the world about them, enchaining, enslaving and perverting conduct, until the unfortunate slave of its vicious sway is no more in harmony with

nis natural self, unperverted by this disease, than the lawfully and justly consigned inmate of a lunatic asylum is?

The dipsomaniac is as surely perverted and deranged in his brain and connected nervous system as any other lunatic, and the confirmed inebriate claims our sympathy and succor and the kindly consideration of the law, because he is the victim of disease. It is for humanity and law to decide in each individual instance, however, how far on the one hand inebriety should extenuate crime and to what extent on the other it should punish the volition that may have engendered the disease. It is a plain proposition, which admits of no doubtful interpretation, that acute alcoholism voluntarily and premeditatively induced, or even voluntarily yielded to, for the purpose of committing or shielding from crime, is as culpable as any other criminal intent, while on the other hand a diseased propensity to drink, indulged in obedience to the promptings of a resistless organic aptitude handed down from father to son, or transmitted through the womb of an alcoholized or otherwise neuropathic mother, should receive a different consideration, just as any other neuropathic heritage causing psychopathic perversion, extenuates even the most henious of crimes in the eye of the law and in the judgment of courts.

Our ancestors in the medical profession rescued the lunatic from the neglect and violence of ignorance: let us protect and save the nerve-degenerate inebriate.

A correspondent of the *Courrier des Etats-Unis* sends from Paris, under date of September 20th, 1890, the following mention of a recent trial for homicide, committed in that city under somewhat peculiar circumstances, and of the prompt acquittal of the accused on the ground of mental irresponsibility. We present to our readers a translation:

On April 20th last, at 11 o'clock A. M., a cry for help was suddenly heard to proceed from a house in Park Royal Street, an apartment of which was occupied by a widow, aged twenty-seven years, named

Bohringer. The neighbors met a man on the threshold of her room, who remarked: "You can enter. It is all over with her. There she is,"—at the same time pointing to the young woman, who lay stretched on the floor in a pool of blood. The victim had been struck with a finely-sharpened cold-chisel. After being conveyed to the Hospital St. Louis, she was able to speak but a few intelligible words, and died after an agony of a few days.

The assassin, named Joseph Hahn, a widower and the father of three children, had long paid assiduous court to the deceased, with the expectation of marriage. That he had premeditated the crime was patent from the fact that he had hired a cutler to sharpen the chisel, the day before. It was satisfactorily shown before the court, that Hahn was a skillful workman, that his probity was incontestable, that he adored his children, but that, when drinking, he became violent and brutal, destroying or injuring whatever was within reach.

At first sight, the tranquil face of Hahn in no way betokens insanity; but his attitude before the Court and the audience was so singular as properly to raise a doubt in this regard.

The following were his replies to questions by the Court:

Court. The police report represents you to be an honest man.

Hahn. Yes, I have always been honest. I have never in my life intentionally done harm to anyone. But sometimes I drink too much, and then it affects my head, so that I know no longer what I do.

C. Why do you drink?

H. Because I am obliged to associate with the public in order to procure work.

C. You met the Bohringer woman in a Roquette Street restaurant. Did you know that she had a lover?

H. No; I did not know it.

C. Did you propose marriage to her?

H. No; it was she who proposed it to me. We were to be married at the end of her term of mourning. We had but two months more to wait.

C. Then why did you kill her?

To this question Hahn at first replied: "I do not know;" and then, gesticulating wildly, he said, amid loud sobs, "I loved that woman as I did my eyes. She deceived me. She had an accepted lover, and I did not know it. She gave me by mistake a handkerchief belonging to that lover. She had consumed my money."

Doctor Ball testified to the limited responsibility of the prisoner. "Hahn," he said, "occupies the very borderland of insanity; he is of so hysterical a temperament that he does not enjoy the full possession of his faculties."

The jury rendered a verdict of acquittal. On the reading of the verdict Hahn appeared astounded and stupefied for several minutes.

Some New Medico-Legal Questions Relating to Inebriety.*

By T. D. Crothers, M. D., Hartford, Conn.,

Superintendent Walnut Lodge Hospital.

EIGHTEEN centuries ago, Ulpian, the Roman jurist, wrote: "A man full of wine can neither see, hear, feel or reason correctly."

Recently, Dr. T. L. Wright has stated this fact, and urged that the testimony of inebriates, while under the influence of spirits, as to matters observed in that state, must never be accepted as true unless confirmed by other evidence.

The common opinion prevalent is that the inebriate, unless stupidly intoxicated, has all his usual acuteness of perceptions and judgment, and in most cases may be more clear and accurate as to events and the consequence of his acts than if sober.

The law assumes and implies that the inebriate is always conscious of his acts and the consequences, and whatever the stupor may be which follows from intoxication, its short duration and uncertainty cannot affect the question of responsibility.

This view has no support from scientific study and experience. The rapid advances in the knowledge of brain and nerve diseases brings out the question of the mental soundness of the inebriate with increasing frequency.

Physicians are called suddenly to answer these questions, and the time has come for a frank, open study of them, above the vague theories and dogmatic assertions which prevail in the court-room and are asserted as principles of law.

* Read before the Section of Neurology and Medical Jurisprudence of American Medical Association, at Nashville, June 21st, 1890.

Recently, a condition known as alcoholic trance or somnambulism, has been brought out in several criminal cases in court, and urged as a distinct state of irresponsibility, should be recognized.

The evidence in most of these cases was so strong as to compel a recognition, and a lesser grade of punishment was accepted. Notwithstanding this great advance, the failure of medical witnesses to understand these and other cases, revealed the urgent need of a larger, clearer study of all the facts. The medical witness should study the facts and be able to draw scientific conclusions from them, irrespective of all legal bearings or questions of law. His sole duty is to point out the facts and their most natural and probable conclusions. He should have nothing to do with the questions of law and legal responsibility. He is called to determine the physiological and psychological questions involved, not the legal responsibility or degree of punishment.

The physician should never attempt to harmonize the legal and physiological points of a case; he should study and defend the facts alone, no matter what the consequences may be. Although alcoholic trance is still disputed, it has won a recognition simply by the array of facts which could not be explained in any other way. Following along this same line of alcoholic disability and irresponsibility, several new questions have recently come into notice, and while the courts refuse to consider them, the medical witness has a double responsibility to study the facts and demand a hearing for them.

The first question which has come into some prominence during the past year is this: How far can the testimony of inebriates or persons under the influence of spirits be trusted concerning matters observed in this condition?

This question called for an answer in the following cases:

An inebriate physician, partially intoxicated, witnessed an assault and swore to the identity and exact part

which the accused was supposed to have taken in the crime.

2nd. A barkeeper partially intoxicated at the time, swore to the particular man who shot another in a crowd, where several shots were fired by different persons.

3rd. A man under the influence of spirits testified that he saw the person accused put fire to a building which was burned down.

4th. A man on his way home from a saloon where he had spent the evening drinking, identified a man in the court-room, whom he asserted he had seen breaking into a house.

In the fifth case, a man partially intoxicated at the time, swore to witnessing the signing of a will.

In these cases the medical witness was asked, What, in your opinion, as an expert, based on the statements of the witness and the circumstances of the case, was the condition of the witness' mind, as to the power of clearly observing and remembering the facts and incidents, to which he has testified? Also, do you believe in these cases, that the witness was competent to observe and clearly remember the incidents to which he has sworn?

If the medical expert has formed no higher opinion of inebriety than that it is a vice in the moral sense and alcohol produces a state of exhiliration, his answer will be unsatisfactory. But if he is a scientific student, he will form a general conclusion, which will at least approximate very near to the real facts.

In arriving at the facts, the medical witness must start from some general principles which are recognized as established beyond question,

1st. The action of alcohol is always that of an anæsthetic, benumbing and paralyzing.

First, the nerve function and the consciousness of nerve impression; second, the power of co-ordinating and regulating these impressions; third, the reasoning or

capacity of comparing acts and events is disturbed. Thus both the sense impressions and the power of analyzing and correctly estimating them are impaired.

This takes place in all cases depending on the amount and quality of spirits taken. Where intoxication follows these effects are very clear, but where a smaller amount of spirits are taken and only partial intoxication present, they are not so prominent. It is present in those who use alcohol continuously, and is noted as a general diminution of brain and sense acuteness.

In active life, brain workers, trained experts, and all persons whose work requires delicate nerve adjustment and accuracy of brain and muscle work, soon find the use of alcohol impairing their powers, and abandon its use, especially when they are called to do any particular work.

The musician, the actor, the scientist, and the professional and business man, very quickly discover the impairments which follow from the use of alcohol, not only over the senses, the volition, the nerve and muscle co-ordination, but the power of clearly realizing the relation of events. The increased action of the heart from alcohol is of short duration, and is surely followed by diminished sensibility and anæsthesia.

The vigor and strength supposed to come from alcohol quickly merges into weakness and debility.

Hence, the man who is visibly poisoned by alcohol, however slight the degree, has defective senses, defective nerve impressions, defective co-ordination and defective reasoning. He is literally suffering from the first stages of paralysis, which begins with the senses. He can neither see or discriminate accurately; he is always open to the possibility of false impressions and false conclusions, and is unable to correct them.

His senses may be but little impaired, but his power of comparison, of analyzing events and their meaning, be very faulty. He has anæsthesia of the higher brain centers, which does not appear except from close observation.

From these general facts the study of the individual case resolves itself into a question of how far the person used spirits and how much he had drank at or about a certain specified time; also the circumstances, conditions and surroundings of the act in question, and the statement of the man; from this medical witness can draw very accurate conclusions.

In the two murder cases referred to, other testimony made the statement of the drinking witness doubtful. In the third case a clear *alibi* was established by the accused. In the other cases, although the evidence of the witness was accepted, there was a strong probability of mistake.

The conclusion which appears at this time to be sustained by all the facts and scientific study of these cases is this:

The testimony of persons while under the influence of spirits, concerning matters observed by them, and their judgment as to events and their meaning, is never accurate, but always open to sources of error and unconscious self-deception, which they are unable to correct.

The medical expert should have no hesitation in denying the value and truthfulness of all such testimony.

A second question has come up recently, along this same line of research, only more difficult and involving more accurate psychological and physiological study.

It is this: How far are the statements or confessions of persons, partially intoxicated or under the influence of spirits, concerning their personal acts, to be accepted as true and veritable?

An answer to this question was sought in the following cases:

An inebriate shot and killed his partner while under the use of spirits. At the station-house soon after, he made a confession which reflected very severely on him. On the trial his statements of the crime were not sustained, but contradicted in many ways.

2d. A stupid beer-drinker shot his wife while drinking, ran away, was captured; told different stories of the crime, each of which aggravated his guilt. The medical experts differed widely on the question of the truthfulness of his confession, and the man was finally hung. Later evidence appeared which indicated great doubt of his confessions, and made it probable that he had shot his wife in a very different way from what he had sworn to.

3d. A man was found drowned, and a drinking friend confessed to have pushed him into the water, while in a state of intoxication. This confession was clear in its details and he seemed very earnest and contrite. It was accepted as true, and he was sentenced to prison for life. Subsequently, it was found that the drowning was accidental and the confessed murderer was miles away, sleeping at this time from alcoholic stupor. A few hours later he came to the scene of the drowning, and at once came to the conclusion that he had committed the crime.

A fourth case was that of a man, who after drinking all the evening in a saloon, saw on his way home, after midnight, a deadly encounter with a burglar in the hall of a house he was passing. He was taken to the station-house, and after a series of questioning, identified the burglar, and swore to many details of the crime.

This was found to be untrue, although he adhered very closely to the details and urged their truthfulness. In reality, he had been told what he saw by the officer, whose suggestive questions made up the entire statement.

The medical questions in these cases were answered from the assumption that the use of alcohol, unless to stupor, does not impair the senses and reason on matters that concern the personal acts and conduct. It was assumed that any statements or confessions of crime that periled the freedom and safety of the man, could have no other motive except that of the promptings of a

wounded consciousness to repair the injury. It was assumed that no man under the influence of spirits, not stupidly intoxicated, would ever confess to acts not committed, or even delude himself with such impressions, especially as at this time the brain was in a state of increased activity. All these assumptions were wrong and contradicted by the facts of all cases. The man under the influence of spirits is always semi-paralyzed; his brain is in a confused state and never guided or controlled by natural healthy motives; his senses and judgment are weakened, and the repetition of any statement which may impress him, may soon seem a reality which he is never able to correct. His mind is open to all sorts of morbid impressions which quickly appear like realities.

In the lower courts these special phases of brain palsies are seen in the confessions and sworn statements of acts and events observed that are found to be absolutely false.

The conclusion is evident that no testimony, statements or confession of persons under the influence of spirits, concerning his acts, conduct or motives, has any value or can be trusted unless sustained by collateral and other evidence.

A third question along this line of inquiry has also become prominent during the year: How far shall an inebriate or man under the influence of spirits be held liable for any acts or contracts, such as wills, marriage or bargains.

The question the medical man is asked is this: How far is the person in this state capable of appreciating the nature and consequence of his acts? Was his mind in any way impaired to that extent as to be unable to clearly realize his duty and obligations to himself and others? Was the act sane in its execution and reasonable consequences? These questions came up for an answer in the following cases:

An inebriate who had drunk at intervals for twenty

years, had made a will disposing of a large property, and had repeatedly mentioned its terms with pleasure and satisfaction. At his death it was found that he had made another will, giving most of his property to the *Freedmen's Bureau* for the education of colored children. He had been a very miserly man all his life, and this was an unusual act. The will was made after a drink period, and he seemed to the lawyer and witnesses sober and fully conscious of what he was doing. The medical men held that the use of spirits had not weakened his mind or rendered him incompetent to dispose of his property.

In a second case, a man who drank to excess at intervals bought a large interest in a traveling circus while under the influence of spirits. He seemed perfectly sane at the time, yet the act was unusual, and he sought to annul the contract, claiming that he was subject to undue influence.

In a third case, a man married a strange woman on a short acquaintance; he seemed conscious of what he did although drinking steadily at the time.

In the fourth case, a single man who drank steadily, married his servant, an Irish girl recently from Ireland. He was a man of culture and wealth, and the marriage was very unusual.

In a fifth case, now pending, a man while under the influence of spirits, placed his entire fortune in a stock broker's company, signing elaborate and detailed contracts, which he disavowed later.

The testimony of medical men as to the probable state of the mind when these acts were performed is the central evidence upon which the issue of each case must turn. The necessity of thorough scientific study of the mental condition of men who use spirits at intervals or continuously, and the application of all the facts that enter into the history of the cases in question is imperative. It is a purely physiological and psychological question above all legal bearings and common personal opinions current in public opinion.

An almost infinite variety of questions are appearing in the court-room with increasing frequency, involving these facts of the mental condition of the person who uses spirits. The following statement which I have made elsewhere, is sustained by clinical study and experience in all cases.

To-day it is shown that the action of alcohol on the brain and nervous system is anæsthetic and paralyzant. The use of alcohol to excess at intervals or continuously always numbs and paralyzes the higher operations of the brain; the over-stimulated heart reacts, and depression and feebleness follow. All the senses are disturbed and become more or less incapable of transmitting the impressions which are received. The brain is incapable of accurately comprehending the nature of acts and the relation of surroundings when under the influence of alcohol. The palsy which follows from this drug masks all brain action. Delusions of vigor and strength appear; events and their consequences and motive and conduct are all exaggerated, misconceived and misinterpreted, and the brain is unable to correct them. The pronounced delusions, illusions, delirium, mania, imbecility and stupor seen in states of intoxication are only the advanced stages of brain conditions which begin with the first glass of spirits. The early changed conduct and speech of men who use spirits are the first symptoms of the paralyzing action of alcohol. More spirits are followed by more paralysis, and finally all judgment and experience and all distinctions of right and wrong, of duty and obligation, are confused and unreal. The supposed brilliancy which follows from the use of spirits is unreal and transient; it is the glamour of the mind which has lost its balance and is unable to correct itself. No other drugs are known whose paralyzing effects on the higher brain centers are so positive and insidious. The inebriate and moderate drinker have always impaired brain force and nerve power. The automatic nature of their life and brain work may cover up this fact, but change the

surroundings and demands on the brain, and its incapacity appears. Every toxic state from alcohol more or less permanently impresses and debilitates brain integrity.

The fear of the law and consequences of acts make little impression in such cases. The brain is anæsthetized and crippled, and cannot realize events and their nature and consequences. The crime committed by an inebriate cannot be the act of a healthy brain. The more pronounced his inebriety and the longer its duration, the more positive the disease and incompetency to reason and control his acts. The effort to fix a point in all disputed cases where sanity and responsibility joins insanity and irresponsibility is an impossibility, which every advance of science demonstrates. It is equally impossible to use alcohol to excess for years and have a sound, normal brain. It is impossible in such a case to fully realize the nature and consequence of acts and obligations. It is a legal fiction to suppose that a crime or act committed while under the influence of alcohol was the voluntary act of a sane man. It is a legal fiction to suppose that a sane man would plan a crime or act, then become intoxicated for the purpose of executing it. It is a legal fiction to suppose that premeditation in crime or acts committed by inebriates is evidence of sanity and consciousness of his acts.

Questions involving the capacity or incapacity of inebriates can never be determined by any metaphysical theory of mind or morals.

It is an error for medical men to regard inebriety in any other except from physical point of view. It is a question of facts and their meaning. Facts of heredity, of growth, of culture and training; facts of disease, of injuries, of degenerations both local and general, of surroundings and mentality, and of the entire history of the case, both physiological, psychological and pathological. From these facts only can any clear conception of inebriety be obtained.

The general problems which are presented in these medico-legal cases are:

1st. Was the person an inebriate or one who drank spirits to excess at all times or at intervals? If this fact is established beyond question, his sanity and mental capacity may be most reasonably and naturally doubted.

2d. What was the mental condition and the circumstances of the person at the time of the commission of the act in question? Was he sane? Was the act reasonable and just in its effects and consequences? If not, the first suspicion is strengthened and the irresponsibility of the person must be assumed and the legal theory must be reversed; the sanity must be proven, not the responsibility.

3d. The medical man has only to gather the facts and have the reasonable assurance of their accuracy. From this he can point out the most probable conclusions which are sustained by such facts. The question is one of preponderance of evidence, which, if it points to defective consciousness of act and conduct, and inability of control, is far more likely to indicate impaired mind or insanity than any other condition. The limits of scientific study will not sustain and will not support assumption of boundary lines of responsibility and irresponsibility.

Insanity as a Symptom of "Bright's Disease."*

By Alice Bennett, M. D., Ph. D., Norristown, Pa.

I HAVE wished, if possible, to make this half-hour, during which I have the honor to address you, of some interest, more especially to the general practitioners of medicine, who make up the great bulk of the Society. To that end I have determined to ask your attention, not to a review of a year's work in the department which I represent, a custom which has come to be "honored in the breach" quite as often as in the observance, but to a field where the labors of the specialist and of the general practitioner meet in close relation, and where the observations upon either hand have been few and incomplete. My subject is "Insanity as a Symptom of the So-called Bright's Disease, or Diseases," a name which, unsatisfactory as it has become, we are yet not prepared to throw away.

The growth of our knowledge has hitherto been hin dered by the too sharply drawn line which has divided the doctors who study the diseases of the body on the one hand, from those who are studying the diseases of the mind upon the other. The general practitioner has been too apt to stand aloof and gaze upon the spectacle of the "human mind diseased" as a something outside his ken, under the influence of forces new and strange, as "outstanding exceptions of humanity, unintelligible except on psychological hypotheses," to which he supposes the alienist to possess some key, all his own, while on the other hand, the "insane doctors" have been so much absorbed in following and classifying the bewildering windings of the disordered mind that they have too often forgotten the body.

* Extract from the "Proceedings of the Medical Society of the State of Pennsylvania," June 10, 1890.

But I take it as a cheering sign when, from the ranks of the alienists themselves, come words like these:*

"The psychological theory of insanity has prevented advance in the study of those forms of disease of which mental alienation is the most prominent, but by no means the sole, or even the most important, symptom. Blinded by this glamour of psychology, we have lost nearly a century of observation, and have frittered away the lives of hundreds of good men." Let me repeat here, also, the words of the member who last occupied this chair:† "If there be one thought in this connection which ought never to be forgotten, it is that *the human mind diseased is the human mind still.* The coming on of insanity marks *not* the appearance of a *new* entity or a *new* force. *Our so-called mental diseases are simply groups of symptoms.*"

This is the fundamental thought which I want to emphasize. Insanity is a symptom or group of symptoms; not always, not in the majority of cases, at least in its beginnings, a symptom of integral disease of the organ whose perverted action it is, but of faulty conditions external to it. Whatever the initial step leading to disordered brain action (I am speaking now of "ordinary insanity" in the sense used by Sankey, excluding that which is organic or developmental), the remote effects are similar; whether beginning as mania or melancholia, it ends sooner or later (*i. e.*, if the morbid process be not checked), in dementia, that is, the limited function of a more or less impaired brain tissue. To the general practitioner alone, in the great majority of cases, comes the opportunity to study insanity in its inception, and to investigate the perverted bodily functions which determine the nutritive changes leading to disordered brain action, when only preventive measures may often be attended with gratifying results.

When we consider the marvelously delicate structure

* John Battey Tuke, *Nineteenth Century*, June, 1889.
† Dr. H. C. Wood, 1888.

of the brain, whose susceptibility to every impression is in fact, its function, is it not self-evident that any defect in the nutritive processes upon which its integrity depends, any deterioration in the quality of the blood or in the manner of its supply, will be liable to influence its action? And this, by a majority of the writers on mental diseases, is conceded in theory, if denied in practice.

Schroeder von der Kolk says:* "Among the causative, forces acting on the brain, the first place must be given to the blood." Blandford says:† "Could we comprehend the blood supply of the brain, beyond all manner of dispute, we should go far toward explaining most of the phenomena of brain function and of brain disorder." And again: "The life and functions of the highest cerebral centers are disordered by interruption in their natural nutrition; if there is a defect—an impoverished blood, or a blood poisoned by deleterious ingredients, the effects must be visible in the functions of the brain."

This is logic and common sense; it is also physiology, and it is difficult to follow this author when, in his chapter on pathology, he reviews the organs most concerned in a pure and equable blood supply, as follows: "*Hearts* are frequently morbid, but we are not to connect these with the outbreak of insanity. In the pathology of commencing insanity the *kidneys* play a very unimportant part. I believe the *liver* has little to do with the pathological condition of a patient who has recently become insane," etc. Griesinger says: "Many cases that terminate fatally in the acute stage present pretty much the appearance of the normal brain, often enough to lead to the conclusion that the symptoms during life were due to some disturbance in the process of nutrition as yet unknown to science." Sankey‡ separates what he calls "ordinary insanity," from paresis, epilepsy, organic and

* "The Pathology and Therapeutics of Mental Diseases."
† "Insanity and Its Treatment," Edinburgh, 1884.
‡ "Lectures on Mental Disease," London, 1884.

developmental insanity. Speaking of the etiology of "ordinary insanity," he says: "The disease consists in a morbid state of the blood, or of the processes concerned in nutrition."

His *résumé* of the morbid anatomy in insanity is at once comprehensive and so concise, and bears so directly upon our subject, that I make no apology for quoting it: "During the earlier period of the disease (Sankey regards mania and melancholia as only differing manifestations of one morbid process), the symptoms are due to an alteration in the blood, in its quality and in its amount; there is some congestion with interstitial deposit of serum and of protein compounds; then atrophy of the brain substance and hypertrophy of the vessels. At first the symptoms are due to the circulation of impure blood; they next are due to excessive supply; then they evidence the imperfect function of an altered cerebral tissue."

Coulston says of melancholia: "It is a constitutional disorder of the brain developed out of hereditary tendency and excited into action by peripheral disease in some other part of the body." Accepting then the self-evident fact, which, moreover, has the support of the high authorities named, that "ordinary insanity" in its first stage depends upon some defect in the quality, or the mode of supply, or both, of the blood, we can hope to get some light upon the causes of insanity only by studying the organs which have to do with blood production, purification and supply. In this vast field, where so many avenues of inquiry open, I shall attempt no more than to make some suggestions along one path in which my own clinical experience has happened to lead me.

It is understood, of course, that no organ, or system of organs acts independently; that there can be no absolute separation of the study of one from the study of another—as, for example the liver, kidneys and heart, often related links in one morbid process—nevertheless each has its definite function, interference with which is followed by equally definite consequences.

By "Bright's disease" we no longer understand a morbid process affecting the kidneys only, but whether we consent to accept the kidney lesion as a part of a general "arterio-capillary-fibrosis" (after Gull and Sutton), or with Dr. A. V. Meigs, look upon it as a localized expression of a general "endarteritis," the fact is undisputed that at some stage in the train of morbid processes, covered by the monumental name "Bright's disease," lesions of the kidney do exist; their function is interfered with; to a greater or less extent they fail to separate certain waste products from the blood, which being retained and circulated through the body produce toxic effects which we have been accustomed to group under the general term "uræmia," or "uræmic poisoning."

I must pass by, as not essential to my purpose, any consideration of the various theories concerning the nature of these nitrogenous waste products, and confine myself to some observations upon their effects, which my experience has led me to believe are more varied and far-reaching than has generally been supposed.

There has been a general impression abroad that diseases of the kidney are not common among the insane, founded upon statements to that effect in most of the text-books and perpetuated by the very general absence of systematic and careful observations in this direction. Griesinger, in his work on Insanity, says: "Anomalies in the urinary secretion may be much more frequent," *i. e.*, among the insane, "than is generally supposed. Unfortunately any reliable researches upon this important subject are still wanting."

My attention was first arrested by the clinical observation of the very constant coincidence of some form of mental pain or distress, *i. e.*, melancholia, with the physical signs in the urine of disturbed kidney action; this is not invariable, but the rule. We have cases of undoubted mania associated with a uræmic condition and, on the other hand, cases of melancholia without; as for example, in some conditions of grave heart lesions with general

debility, and some transitory cases associated with disturbed liver action with the uric-acid formation.

[A. Haig, in an article in the *London Practitiouer*, Vol. XLI., No. 5, on "Mental Depression and the Excretion of Uric Acid," speaks of the demoralizing influence of uric acid upon the nerve centers and explains the well-known fact, that states of mental depression are intensified in the morning, by the increased alkalinity of the blood at that time, and consequent greater solubility of uric acid. We know that our melancholic patients are worse and that suicidal impulses are to be specially guarded against in the early morning.]

Briefly formulated, my experience has led me to believe:

1. That contrary to the generally received opinion, affections of the kidney are very common among the insane.

2. That "uræmic poisoning" is one of the most frequent causes of insanity.

3. That while the mental manifestations may be as varied as there are different centers subjected to irritation by these unknown poisons, the most prominent and constant symptom is some form of *mental pain*, which may range from simple depression, through all degrees and varieties of delusions of persecution, self-condemnation and apprehension, with or without hallucinations, up to a condition characterized by a frenzy of fear, with extraordinary motor excitement, and rapid physical prostration, the "grave delirium" or "typho-mania" of some authors,

4. That the motor centers are specially liable to affection, as evidenced by the restlessness and incessant activity of many cases, less frequently by convulsions and convulsive twitchings; occasionally by choreic movements; occasionally by cataleptoidal states.

Undoubtedly there is much more of "Bright's disease" in the community than appears on any record book, the interstitial form often running a very long course,

frequently unrecognized. Persons subject to "bilious attacks" and "sick headaches"; to obscure neuralgias; to crawling sensations (often described to me "like the flowing of water" over the part affected) in the head and especially in the back of the neck; people who are "tired all the time," who have sleepless nights, or occasional night terrors; who have unexplained attacks of sudden weakness, or periods of low spirits without cause; who show an unnatural irritability, or a gradual change of character or disposition; those who are subject to gout, rheumatism, chorea, skin eruptions, to itchings of the surface of the body, either local or general—all these may well be suspected of dangerous tendencies.

I need not say that numberless cases of slow kidney trouble live long and fairly comfortable lives without showing any mental disturbance, and that many others run a rapid course to death without such complication. We must assume, in some cases, a toxic impression of overwhelming power; but, doubtless, some brains are predisposed, by inheritance or otherwise, to an easy overthrow of the mental balahce. This seemed plain in many of my cases. In such a one, given a chronic nephritis, or even without it, insanity may be induced by anything that increases the burden thrown upon the kidney, diminishes its working-force, or interferes with other excretions. Such causes are: improper diet; long-continued constipation; sudden exposure to cold; pregnancy, or any unusual interference with the circulation; overwork of body or mind, and especially worry; intercurrent disease, or anything that depresses the system and lessens its power of resistance. The influenza epidemic in the beginning of the present year sent us a number of cases of melancholia which belong in this category. (See Cases LVI., LVII. and LIX.) A factor which cannot be left out of account in these cases, is the heart; whether a coincident or resultant change, we know that, with diseased kidneys, we are apt to have abnormal hearts, and it is an interesting question, to what degree mental disturbance may be aided

by some modification in the supply of blood to the brain, due to normal heart action.*

Dr. Landon Carter Gray, of New York, read a very interesting and suggestive paper before the American Neurological Association, in 1889, on "Three Diagnostic Signs of Melancholia," with notes of sixteen cases illustrating the *association of mental depression, insomnia, and post-cervical ache*, which he has found so constant in his practice. Dr. Gray says: "The simple forms of melancholia are often extremely difficult to diagnosticate, especially in the early stage, as the reasoning powers, the memory, and the perceptions are then often seemingly unimpaired or not more affected than is possible from a myriad unimportant causes. Patients suffering from this mental disease too frequently figure as neurasthenics to be confidently treated as such, until some determined and frightful suicidal, or homicido-suicidal, attempt throws startling light upon the true nature of the malady. These, too, are the cases of unaccountable suicide which puzzle friends, and competing newspaper reporters account for satisfactorily and sensationally upon some theory of rejected love or high-flown sentimentalism. Any certain diagnostic symptoms in this class of cases should be, for these reasons, of value. * * * So firmly have I come to rely upon the association of this symptomatic triad" [*i. e.*, mental depression, insomnia and post-cervical ache], "that I have lately made a diagnosis in two cases by means of it. The first patient was a gentleman who came to me complaining of a distress in the back of the head and neck, which at times was painful. I learned from him that the onset dated back to six years ago, when, as he said, he had been run down and depressed. I then told him that I would outline to him his symptoms at that time, and I proceeded to tell him that he had been very much depressed, had not been able to sleep, had thought of committing suicide, had been slightly confused in mind,

* In the Address on Mental Disorders, for 1884, the writer gave an analysis of 500 cases of insanity, 20 per cent. of which had some heart affection.

and had remained in this condition for several months. He was amazed, and asked me if I was a mind-reader, finally admitting that he had passed through just such an attack of melancholia, which he had concealed from everybody, because he was then living in Burmah in the employ of the English Government, and was afraid that he would lose his position if thought insane."

I fully concur in all that Dr. Gray has so well said in this paper; but, in going a step farther and investigating the *causes* of insomnia and post-cervical ache, both among the most common symptoms of "uræmic" blood poisoning, we shall find additional aids to diagnosis and safeguards against catastrophes like those mentioned.

In cases of Bright's disease with sudden invasion of melancholia, there is one feature so constant that I have come to regard it as diagnostic: it is the *sense of impending danger*, the overwhelming *fear* of some threatening calamity, which inspires the one irresistible impulse to "get away" which dominates the individual for the time, and under the influence of which he often jumps out of the nearest window. (See Cases LV., LVIII., XLVII., and others.

To prevent insanity by recognition and treatment of the conditions leading to it will be our aim; frequently, however, so insidious is Bright's disease, and so unwilling are people generally to appear to make much of their little ailments, which would be such valuable indicators if revealed, that we know nothing of the state of affairs until some catastrophe has taken place. Even then it is worth much to be able to say why it has occurred, and even in unpromising cases gratifying results sometimes follow prompt treatment in the lines indicated, but prognosis must always be guarded.

I think that I can serve you best by presenting some clinical notes of cases with comments; but before going on to speak of my own experience, I will ask you to look at the literature of the subject.

Books on diseases of the kidney say almost nothing

of the effects of retained nitrogenous waste products upon the nervous system, except convulsions and coma, generally preceding death.

From all the works on insanity accessible to me I have gathered everything bearing on this subject that I could find.

From Bucknill and Tuke:* "The kidneys are remarkably free from disease in all forms of insanity. We have met with three cases of Bright's disease among the insane, and we have found the experience of others of a similar nature." They quote with evident suprise, Howden, who had admitted twelve cases of albuminuria in three years, and who, in 235 *post-mortem* examinations, had found kidney disease in 86.

They admit two genuine cases of "insanity co-existent with the waxy form of Bright's disease," mentioned by Dr. Wright, in the "Report of the Royal Edinburgh Asylum," for 1871, and speak also of a similar case recorded by Dr. Wilkes in the *Journal of Mental Science*, for 1869.

In connection with gout, Bucknill and Tuke say: "Outside the walls of asylums, cases are frequently met with which are marked by *unfounded dread*, especially on awaking in the morning, in which there is a gouty diathesis, and suspicion is aroused that there is a causal relation between the bodily condition and the mental anguish. This suspicion is confirmed by the marked success of treatment founded upon this supposition."

Schroeder von der Kolk, under "Sympathetic Insanity," records two cases of insanity accompanying vesical catarrh, of which one recovered; in the other an affection of the kidneys supervened, and the patient died.

Sankey found adhesion of the capsule of the kidney in one-half his cases *post-mortem*, and "in a large number, other evidences of disease, as atrophy of the cortex, fatty degeneration, waxy disease, etc." This author does not seem to have made any study of the kidneys during life. The presence of kidney changes *post-mortem*

* "Psychological Medicine."

he regards as "evidence that the blood has been impure" (emphasized by him as the first step in the production of "ordinary insanity," as quoted above); nevertheless, he concludes by saying: "I do not consider the true pathology of insanity to have any necessary relation to kidney disease."

Gowers calls attention to organic changes (as apoplexy), which may ensue from atheroma of the arteries in advanced Bright's disease.

Griesinger* says: "Bright's disease to which any etiological relation to insanity could be attributed, is very rare indeed." One would much like the complete clinical record of a case like his No. 12, of which the following is a condensed abstract:

"Delirium occurring in second pregnancy; formication and smarting over whole surface; a general sense of ill-being; sleeplessness; ringing in ears; vertigo; pulse hard; slight cardiac hypertrophy; recovered, and relapsed in the following year."

Or his No. 8: "Man; hepatitis in the beginning; variable temper; pain in lumbar region; burning in urethra and bladder; at times had gravel; died in a few months."

Blandford speaks of a variety of melancholia "usually ascribed to dyspepsia or disorder of the stomach and liver." He has also noticed that "melancholia often comes on, as a precursor of death, at the close of other diseases."

In Clouston's† very interesting work I find more bearing upon this subject than in any other I have read, although I cannot always agree with this author in his interpretation of facts. For example, his two cases of diabetic insanity, which have been extensively quoted in other text-books. In Case No. 2, a man, who died after melancholia of two years' duration, with delusions of persecution, the diagnosis rested entirely upon one examina-

* "Mental Pathology and Therapeutics."

† "Clinical Lectures on Mental Diseases," London, 1883.

tion of the urine, made near the close of life; no symptom had led to the suspicion of diabetes, and there was no *post-mortem* examination.

That some amount of sugar in the urine is frequently associated with chronic Bright's disease is well known, and I have twice met the condition noted in my Case VI., where shortly before death sugar appeared in large quantities in the urine, from which it had previously been absent.

His Case No. 1 was a "woman, aged fifty-nine; agitated melancholia; toward the end, sleepy all the time; urine never very copious; ordinary treatment of diabetes of no avail."

Clouston recognizes a "variety of mental derangement, half delirium and half mania, which results from uræmic poisoning, which he names the 'insanity of Bright's disease,' * * * * usually occurring in chronic cases with contracted kidneys, where there has been enlargement of the heart and a tendency to dropsy for some time," and he gives one illustrative case.

He has also noticed in such cases "mania of a delirious character, with extreme restlessness, with remissions, attended with great prostration" (the equivalent of the "grave delirium" of some authors, of which I shall want to speak again).

I was especially interested in Dr. Clouston's studies of melancholia, which is the one form of insanity I so constantly find associated with defective kidneys. He considers it under eight heads, as follows:

1, Simple melancholia.
2, Hypochondriacal melancholia.
3, Delusional melancholia.
4, Excited or motor melancholia.
5, Resistive melancholia.
6, Epileptiform melancholia.
7, Organic melancholia.
8, Suicidal and homicidal melancholia.

These divisions are convenient, but it is needless to

say that (excluding "organic," which seems to me out of place here) they are descriptive of mental states rather than varieties of disease; often transitory, passing one into the other in the same case. Etiologically, I would consider them all as one, including also stuporous melancholia, which Clouston considers under the separate general head "Stupor." Of the "motor" and "epileptiform" varieties, he remarks that they are "specially liable to skin irritations, itchings, boils," etc.

The treatment that this author has found of most value in melancholia is, to me, significant: milk is his "sheet-anchor;" farinaceous and fatty foods; an abundance of fresh air; baths, and especially Turkish baths, of which he says: "I have seen many chronic, incurable cases of melancholia improved by a course of Turkish baths."

In our own country there have been some special contributions:

In 203 autopsies at the Government Hospital for the Insane, at Washington, D. C., about one-sixth of the kidneys "presented alterations sufficient to constitute disease."

Prof. William Osler reported to the Philadelphia Neurological Society, in 1888, three cases of insanity associated with "Bright's Disease:"

CASE I.—Man, aged 42, known to be the subject of "Bright's disease;" after three or four days of violent mania, died in a comatose condition.

CASE II.—Man, the subject of interstitial nephritis, admitted to the University Hospital in a semi-stuporous condition; had previously been maniacal, and had delusions of persecution; committed suicide by jumping from an upper window.

CASE III.—A man, with chronic "Bright's disease," who for a time refused food, under the influence of delusions of persecutions; afterward improved.

Dr. L. Bremer, of St. Louis, in a paper read before the State Medical Society of Missouri, in April, 1888,

details seven cases that have come under his observation:

CASE I.—Unmarried woman, aged 38; rheumatism and chorea at fourteen; albuminuria, following fall into cold water, of four years' duration; a second exposure followed by scanty secretion of urine, insomnia, irritability, mania of two days' duration, followed by melancholia with self-condemnatory delusions; attempted suicide on the ninth day, resulting in excessive hemorrhage, followed by sleep and rapid recovery. The urine contained albumin, hyaline and epithelial casts, pus and blood corpuscles, disappearing with complete restoration to health.

CASE II.—Man, a drinker; acute rheumatism, with fever, tremors, spastic state of muscles, delirious insanity marked by intense restlessness and vivid hallucinations; urine contained enormous amount of albumin, hyaline and blood casts, which almost disappeared during a remission of three weeks, when mind was clear, and again increased with a relapse, which ended in coma and death, eight weeks from the inception of the disease. No *post-mortem* examination.

CASE III.—Woman, aged 48; injury to head in childhood; puerperal mania at thirty-four; six years later, rheumatism with intense insomnia, preceded a melancholia of several months' duration. Cast attack followed prolonged exposure in a railroad accident; active delirium, with menacing hallucinations, coma; death one month from beginning of the attack. Albumin, epithelial and hyaline casts in urine.

CASE IV.—Woman, aged 55; sciatica for ten years; an exceptionally severe attack, followed by mental confusion, quickly passing into coma and death. Urine contained epithelial and blood casts, and pus corpuscles.

Dr. Bremer's Cases V., VI. and VII., are somewhat complicated, and I pass over them here.

Dr. E. A. Christian, of the East Michigan Asylum, reports* thirty-seven out of 2,600 cases of insanity admitted to that hospital, "in which the appearance of grave

* "Journal of American Medical Association," March, 1889.

disturbances of nutrition had been coincident with albumin and tube-casts in the urine; in only about a dozen could it be said that the mental manifestations were not dependent upon, or modified to some extent by, the renal disease." Of these cases he makes two divisions, first, the "uro-toxic," second, the "vascular." I give condensed abstracts of his five cases illustrating the first class, which he considers much less common than the second. (In this my experience is widely at variance with Dr. Christian's.)

Case I.—Woman, aged 34; convulsions, followed by insanity, at a miscarriage three years before. A second attack, also puerperal, two years later. Third and last attack also puerperal; "grave dyspeptic disorders and failing vision" in interim. Mostly "confused and restless;" a low muttering delirium. Died semi-comatose in the third month of attack. Urine contained albumin, waxy casts and debris. No autopsy.

Case II.—A year of dyspeptic troubles, headaches, frequent vomiting, eczema, etc., was followed successively by delusions of suspicion, hallucinations of sight and hearing, low delirium, and near the close, intense excitability of the motor centers, with spasms of all the voluntary muscles. Albumin, hyaline and granular casts in the urine. Death in four months. No autopsy.

Case III.—Male, aged 81; restless and irritable for eighteen months. Extravagant ideas, followed by delusions of fear, merging into general mental confusion; coma of five days; death. Albumin and casts in the urine.

Case IV.—Male, aged 45; sequence of symptoms as follows: peculiar and forgetful, confused, hypchondriacal, suspicious, religious delusions. Died, semi-comatose, in four months. No autopsy. Albumin and casts in urine.

Case V.—Woman, aged 57; a fever of some sort, followed by causeless worrying, profound depression, delusions of suspicion, œdema; albumin and casts in urine; asthenic; paroxysmal, asthmatic seizures, with cough;

died of pleuritic effusion, more than two years from the beginning of insanity.

While I do not agree with the last-named writer as to the preponderance of the "vascular" over the "uro-toxic" cases, I freely concede the frequency and importance of the former class, among which belong many of our early apoplexies. I want to say, also, in passing, that the relation between paresis and "Bright's disease" seems to me to require further investigation; we know that many cases of paresis are associated with kidney disease, and I have seen cases, beginning as melancholia with uræmia, pass into a condition similar to, if not identical with, paresis.

The cases which I present are all taken from the records of the Department for Women of the Norristown Hospital for the Insane. They are divided into clinical groups, and are condensed as much as possible.

First Group.—Cases (12) rapidly fatal (twelve days to three months). I am persuaded that to this class belong many of the cases variously designated as "typho-mania," "grave delirium," etc, by different writers. Nothing more distressing, nothing more hopeless of even amelioration, can come either to the general practitioner or the specialist. Their characteristic features are intense motor excitement, with rapid physical prostration, a condition graphically described by Spitzka, as follows: "Insomnia and inability to think, increased irritability, and a sense of impending misfortune precede the outbreak, which is often so sudden as to suggest the fulminating type of typhus, or of epidemic meningitis. There is wild, aggressive delirium—a panphobia—the patient jumps out of the window, beats the plaster from the walls, eats bedding, and clutches at his attendant with a frenzy of despair; may sing, whistle, yell, and tear off clothing continuously for days. One patient kept plunging his head against the ceiling until beaten to a jelly. Another rubbed his thumb against his teeth until it hung by a thread." Dr. Spitzka concludes,

since "all the pathological changes of the brain noted *post-mortem* are only collateral results of disturbed circulation, and throw no direct light on the essential pathology of 'grave delirium,'" that we must infer the "formation of a toxic agent in the nerve-centers themselves."

Case I. ——, aged 42, American, married but deserted by husband; general health said to have been poor during her married life; had been "a little unlike herself" for the preceding five or six months. One week before admission to the hospital became actively insane, with extreme restlessness and increasing bodily depression. On admission showed most intense motor excitement which was almost incessant for one week. This was followed by a week of great physical prostration in bed, ending in death on the fourteenth day, three weeks from the beginning of the attack. At times during the last week, mind was quite clear. A few days before death a double pneumonia developed, which hastened the fatal issue. Urine contained albumin and hyaline casts on admission. Autopsy showed the large mottled kidneys of chronic diffuse nephritis. Heart flabby, hypertrophied, and dilated. Liver enlarged. Lungs, red hepatization, except at apices.

Case II. ——, aged 32, American, married, mother of three healthy children; paternal uncle insane; showed slight peculiarities for preceding year; apt to complain of "pain across back" but was not considered sick until ten days before admission, when violent insanity developed suddenly, during the night; was kept in bed by mechanical measures, and was brought to the hospital, bound to a stretcher, over a distance of sixty miles. On admission she was in a semi-comatose condition; action of heart extremely feeble; urine loaded with granular and waxy casts and blood discs. She lived six days in this condition. Autopsy: Heart, organized clots in all cavities; aortic insufficiency. Kidneys normal size, cortex thin and very fatty; one hemorrhagic infarct size of marble. Liver "nutmeg" on section.

Case III. ——, aged 29, single, of Irish parentage, good family history. Reported good health up to three weeks before admission, when she became melan-

choly, with the delusion that the neighbors were defaming her character; persistently suicidal. On admission urine contained albumin, hyaline and granular casts; action of heart feeble. Death occurred after thirty-three days (in eighth week of attack), during which she was the subject of intense motor excitement with agonizing apprehension. Once repeated rapidly for hours, in most piercing screams, "O God! where is my brother?" Fed with tube. No autopsy.

Case IV. ——, aged 39, of German extraction, wife of intemperate saloon keeper; patient said to have drank beer in moderation; mother of eight children, three miscarriages during the preceding year, said to have been artificially induced; domestic relations unhappy and general health not good for a year. Insanity developed suddenly, three weeks before admission, in the form of melancholia with suicidal and homicidal impulses; asked her friends "to put her in the asylum because she could not trust herself." On admission appeared well and continued sensible, cheerful, and industrious for three weeks; gave a clear history of her attack, and soon evinced a natural desire to go home and take her place in her family. One examination of the urine at this time gave negative results. Heart enlarged, with mitral systolic murmur. On the twenty-second day she became melancholy; quiet, with tendency to stupor, but made several attempts to choke an unoffending fellow-patient; increasing mental dullness with rapid physical wasting for one week. On the eighth and ninth days (of this attack) showed extreme restlessness; would throw herself about the floor, beat the walls, scream, etc.; tenth day in bed; died on morning of eleventh day. A second examination of the urine made during this attack also gave negative results. Autopsy: Venous congestion everywhere marked; heart hypertrophied, with mitral leak; kidneys large, capsule thickened and removed with difficulty from a roughly granular surface; cortex on section, showed extensive fatty change; liver also showed fatty changes in a few places.

This case is interesting as showing the remission which is so frequently seen in the mental, as in other manifestations of "Bright's disease," and also as illustrating the necessity for repeated examinations of the urine.

Case V. ——, aged 33, Irish, single, domestic, good family and personal history. One week before admission suddenly became wildly delirious; no previous symptoms noted. On admission she was excited, incoherent, and in constant motion of some sort. Urine loaded with granular and waxy casts. Lived nine days; delirium passed into semi-comatose condition for the last two days of life. Autopsy: Kidneys contracted, capsule adherent, cortex thin, cystic and fatty. Some thickening of heart valves and numerous atheromatous patches in coats of arteries of the brain.

Case VI. ——, aged 26, American, single; one paternal cousin insane; general health had been considered good, but slight failure of memory and a tendency to repeat words had been noticed for two years. Onset of insanity sudden, twelve days before admission, shown by incessant talking of delusions of a persecutory nature, insomnia and restlessness. On admission, condition as described above; after one week, passed into a condition of semi-coma, which lasted a month, and she died in the seventh week of the attack. The urine contained a small amount of albumin, hyaline, epithelial and granular casts. There was a mitral systolic murmur of the heart. Ten days before death the urine contained a considerable amount of sugar, although none had been found at two previous examinations. In the last week, showed a tendency to convulsive twitchings of all the voluntary muscles; superficial sores readily followed slight irritations of the skin. Autopsy showed contracted and granular kidneys. Heart hypertrophied, with mitral leak.

Case VII. ——, aged 38, married, mother of five children. Invasion of insanity sudden, of one week's duration; lived eight days, after admission to the hospital, in a condition of restless delirium, with rapid loss of flesh. Autopsy showed kidneys contracted and fatty; heart hypertrophied and dilated.

Case VIII. ——, aged 45, of Irish parentage. Dyspepsia for two years, somewhat depressed for four months; melancholia, with restlessness and delusions, for one week before admission to the hospital. Special delusions were that there was "a roaring lion inside" her

body; at another time, a "man," etc. Continuously restless; died eighteen days from the beginning of the attack. No autopsy. Urine contained albumin; no casts found.

CASE IX. ——, aged 26, Pennsylvania German, single, domestic; left service six weeks before through ill-health, but there were no mental symptoms until two weeks before admission to the hospital, when she suddenly became deranged, screaming, "The people are burning up!" Refused food and lost flesh rapidly. Died six days after admission, three weeks from the onset of mental symptoms. The urine contained albumin and many granular casts. The autopsy showed the kidneys much contracted, cortex granular and cystic.

CASE X. ——, aged 30, American, married, good family history. Had suffered from dyspepsia, but was considered fairly well up to eight weeks before admission to the hospital. Insanity characterized by apprehensions of disaster, suicidal attempts and great restlessness. Lived twenty-five days. No autopsy. Urine contained hyaline and granular casts.

CASE XI. ——, aged 37, American, widow, mother of five children. Had been running down in health for four months with some mental depression, but no obvious insanity until ten days before death, which was probably hastened by the fatigue of the journey to the hospital. She died after two days, during which she manifested great restlessness and mental distress, with apprehensions of injury. The urine contained albumin and granular casts. The autopsy showed kidneys granular and contracted, with a large cicatrix on the posterior surface of the left; heart very pale, flabby; insufficient valves.

CASE XII. ——, aged 47, American, widow. Sudden development of insanity; melancholia, with great restlessness, fear, screaming, etc., followed by death in twenty days. Urine contained granular casts. No autopsy. This case was complicated by swelling of both parotid glands a few days before death.

Second Group.—Cases (12) less rapidly fatal (three months to nine and one-half years).

Case XIII. ——, aged 59, married, mother of two children; one maternal cousin insane. Melancholy for about two months before admission, with a remission of about one month, during which she seemed well; prominent mental features were delusions concerning her own body, apprehensions of injury and hallucinations of sight; at first very restless, but soon became quiet and markedly resistive; never stuporous but seldom spoke; expression watchful, suspicious and despairing; often required mechanical feeding; at times seemed to suffer great pain, which on two occasions, appeared to be relieved by the passing of a large quantity of bloody urine. Emaciation was rapid and extreme. The urine contained albumin, hyaline and epithelial casts. Death occurred in the seventh week of her residence with us, the fifteenth from the beginning of insanity.

Case XIV. ——, aged 32, American, married, mother of one child, eight years old. Melancholy for nine months before admission; died six months later, fifteen from the beginning of insanity. No autopsy.

This case was characterized by extreme melancholy and strong suicidal impulses always active; generally silent, with most agonized, despairing expression, but had periods when she would utter piercing screams and throw herself about the floor for hours; often fed with tube because she refused food. There were several slight convulsive seizures just before death.

Case XV. ——, aged 50, American, widow; no family history of insanity. Something more than a year before admission to the hospital became the subject of restless melancholia, followed by a gradual failure of intellect. On admission, bewildered and frightened air; comprehension feeble; spoke few words in disjointed, childish manner; appetite inordinate; habits unclean; destructive of clothing and other property; resistive to a marked degree, the most ordinary measures for her comfort requiring four to six nurses. Urine contained albumin (small amount), hyaline and fatty casts. This patient lived a year in the condition described above, more than two years from the beginning of the attack. No autopsy.

Case XVI. ——, aged 50, Irish, single; had been complaining of minor ailments for two years. Six weeks

before admission became suddenly melancholy, with active delusions of persecution; suicidal; refused food and lost flesh rapidly. Died in the eighth month. Became very much emaciated; frequent abscesses followed superficial injuries; during a remission of three months was almost well, quiet and sensible, but with this exception, was always restless, disorderly, and an exceedingly troublesome patient to care for. Urine contained albumin; no casts noted. Autopsy: Kidneys contracted, capsules adherent, cortex very thin and containing some cysts; pelves dilated and injected; heart valves thickened and atheromatous; atheroma of cerebral vessels.

Case XVII. ——, aged 40, Irish, single, domestic; mother insane at menopause; second attack (first attack due to "ill-health;" eighteen years before). One year before admission awoke suddenly in the night with the delusion that her room-mate was going to kill her. Lived seven months (nineteen from the beginning), always in a condition of exaggerated fear and apprehension. Gradual physical deterioration with development of tuberculosis. No record of urine. Autopsy: Kidneys contracted, cortex very much thinned. Fatty degeneration of heart, with thickening of valves. Lungs tuberculous, with almost total destruction of the right; two pints of purulent fluid in the right pleural sac.

Case XVIII. ——, aged 37, American, married, and mother of five children; patient said to have been a chronic sufferer from "indigestion, liver and kidney troubles." Mental symptoms of four months' duration; a gradual development of melancholia with tendency to stupor. On admission urine contained hyaline casts with granular epithelium. Mind and body failed together and she died in four and one-half months, eight and one-half months from the beginning. Pulmonary tuberculosis developed in the later stages. Autopsy: Granular, contracted kidneys; tuberculosis of lungs; mitral stenosis of heart.

Case XIX. ——, aged past 50, married, no children, Irish; a niece insane. Had been considered fairly well up to about two months before admission, when she began to worry about trifles and developed hallucinations of sight and hearing; attempted suicide by cutting

abdomen with a razor because she was "tired of herself." On admission, the urine contained hyaline casts; tendency to obesity, with flabby flesh and sluggish circulation; heart-sounds feeble. This patient seemed more hypochondriacal than truly melancholia; her attention could generally be diverted and at times she was even cheerful. Her suicidal intentions were not much credited until, one month after her admission to the hospital, she managed to secrete a table-knife and cut her own throat almost "from ear to ear," half severing the trachea, but no important vessels. This was followed by an amelioration of the mental symptoms. The wound kept in healthy condition and had healed to within one and a half inches (small opening into the trachea remained) at the time of her death, which was two months from the time of her admission, four from the beginning of her insanity. She was constantly threatened with heart-failure, and her death, occurring very suddenly, was evidently due to that cause. Autopsy: Kidneys a little swollen in appearance; capsule not adherent; cortex thin, friable, and of yellowish color, containing some cysts; pelves dilated and injected. Heart flabby and fatty, valves thickened and atheromatous. Liver large and fatty. Right lung contained, in posterior part of lower lobe, a gangrenous area, two by three inches, circumscribed by inflammatory adhesions of the adjacent pleura. Brain not examined.

Case XX. ——, aged 72, American, married; two brothers committed suicide. Suicidal melancholia of six months' duration; had a similar attack three years before, from which she apparently recovered. Lived two months, eight from beginning of last attack. No autopsy. Urine contained waxy and granular casts.

Case XXI. ——, aged 24, American, single, domestic; was "running down" in health for an indefinite time. Melancholia of restless type; rapid decline with development of tuberculosis. Urine contained a small amount of albumin. Died in four months. Autopsy: Granular, contracted kidneys; tuberculosis of lungs; mitral stenosis of heart; fatty liver.

Case XXII. ——, aged 66, American, widow. Melancholy for one year before admission, and committed

suicide by hanging herself two months later. Urine contained albumin and hyaline casts. There was a mitral systolic murmur of the heart. No autopsy.

Case XXIII. ——, aged 60, Pennsylvania German, widow. Whole duration nine and one-half years. Restless melancholia with keenest apprehensions constantly present. In the early stages would look out of the window and scream "The sky is coming down!" "We shall all be burned up!" in an agony of fear. Terminated in partial dementia of melancholic type, with extreme emaciation. Autopsy: Kidneys, cortex almost entirely destroyed by fatty change. Heart, atheroma and thickening of valves; calculus in gall-bladder.

Case XXIV. ——, aged 65, American, widow, one daughter whose mental capacity seemed below the average. Two weeks before admission arose in the night and tried to set fire to the house. Condition that of restless melancholia of rather quiet type. Lived six and one-half years; without remissions; tendency to dementia slight. Autopsy: Kidneys contracted, with extensive destruction of cortex. Heart-valves thickened. Lungs tuberculous.

Third Group.—Cases (8) terminating in rapid recovery.

Case XXV. ——, aged 37, mulatto, married; ten days before expiration of a year's sentence in prison became melancholy, with keen apprehension of personal injury; hallucinations of hearing and smell; refused food, "having heard them say that it was poisoned to kill her." On admission, urine contained a considerable amount of uric acid and a small amount of albumin; no casts noted. The mental symptoms disappeared in a few days and coincidently the urine became normal. She was discharged quite well in one month.

Case XXVI. ——, aged 44, American, married, mother of seven healthy children. Had suffered from uterine trouble for seven years; internal hemorrhoids also. Simple melancholia developed two months before admission; lost interest in household and family; apprehensions of injury; headache, insomnia, "noises in head," etc. Urine contained hyaline casts and granular epithelium; heart normal. Recovered in six weeks (now two and one-half years ago).

Case XXVII. ——, aged 49, American, single, no insanity in family. Patient lived on a farm, in comfortable circumstances, and was accustomed to eating largely of food that was difficult of digestion; a large woman of full habit; melancholia developed very suddenly; distrusted her own family and jumped from an upper window with the idea of escaping impending danger. On admission (three days after beginning of insanity), mind much confused; incoherent, apprehensive, and especially resistive for about one week, after which convalescence was gradually established; discharged well in twenty-one days. (No relapse for three years). Urine, on the third day, contained a large amount of uric acid and a few casts; on the eighteenth day it was normal.

Case XXVIII. ——, aged 53, American, wife of a well-to-do farmer; two healthy children; grandfather and father committed suicide; sister and paternal cousin also have been insane. Patient was never strong; subject to palpitation of heart. At seventeen years had an attack of melancholia lasting "a few weeks." Four years ago was again melancholy for ten weeks, ascribed to "general debility." Present attack of three weeks' duration (irritable in her family for a longer period), restless, dissatisfied, and suspicious; suicidal tendencies suspected; physical condition poor; complained of "pains all over." On admission, found weak and anæmic; the urine contained much uric acid, a considerable amount of albumin, and a few granular casts. There was a mitral systolic heart murmur. With improvement in her physical condition the mental symptoms disappeared, and she went home in three months quite well in mind; at that time examination of the urine showed a small amount of uric acid but no albumin or casts. This patient has now been at home seventeen months. While I do not believe it possible for her ever to be well, in a physical sense, immunity from mental symptoms will depend upon the care with which the conditions of her life are regulated.

Case XXIX. ——, aged 71, English, widow, with two healthy children; a small delicately built woman. Two previous attacks of melancholia, nine years apart. Present attack of four months' duration, appearing to follow erysipelas. On admission, restless, apprehensive,

suicidal. The urine contained a considerable amount of albumin, with many hyaline, granular and waxy casts, which gradually diminished, with coincident improvement in the mental symptoms, until she was discharged well in two months from the time of her admission. At that time the urine contained an occasional cast, but no albumin.

In this case, as in the preceding one, the prognosis must be conditional. I cannot doubt in this, as in many similar cases that have come under my care, that the mental manifestations have been coincident with, and closely related to, exacerbations in the course of a slow, interstitial nephritis extending over many years.

Case XXX. ——, aged 35, Pennsylvania German, married; father once insane but recovered. Insanity, with frenzied excitement, developed two weeks before she was brought to me; had been tied down to prevent her injuring herself; would try to beat her head against the walls and floor, to dig out her eyes, etc. After admission, great restlessness continued for several days; sometimes would utter the most piercing screams for hours at a time; there was general confusion of mind, which gradually disappeared, but depression of spirits, apprehensions, etc., with remissions, persisted for a longer time. She went home well in six weeks, eight from the beginning of the attack. The urine, on admission, contained albumin, hyaline and granular casts. (It is much to be regretted that there is no record of the urine at the time of her discharge.)

Case XXXI. ——, aged 50, American, married, with two healthy children. Rheumatism one year before admission to the hospital; mental depression for two weeks, restlessness, apprehensive delusions, suicidal tendencies and rapid physical deterioration; complexion markedly sallow; urine contained uric acid and granular casts; heart sounds feeble with a mitral systolic murmur. Under tonic treatment her physical condition improved, the mental symptoms disappeared, and she went home well in two months.

Case XXXII. ——, aged 48, American, single; very marked family tendency to insanity, and patient herself

rather below the average mentally. A large, heavily built woman. Fifteen days before admission to the hospital began to show mental disturbance with remissions; on the thirteenth day awoke from sleep with piercing screams; the same day had severe pain in the region of the heart, with dyspnœa, lasting twenty minutes; micturition was reported as abnormally frequent during the first week, and she had complained of "pain in the back." On admission, face turgid, eyes injected, skin hot to touch; markedly resistive with general confusion of mind. Venesection was followed by immediate relief of the condition described, and on the second day she resembled nothing so much as a good-natured baby who is just learning to talk. She slowly regained her normal condition, and was discharged practically well in about two months. (One year later I have heard that there has been a relapse.) The urine contained uric acid, albumin and casts, which diminished but did not (the uric acid excepted) entirely disappear with her restoration to mental health.

Fourth Group.—Cases (3) recovering after many months.

Case XXXIII. ——, aged 28, American, wife of traveling salesman, with two healthy children; of healthy family. For the preceding year had complained of a "heavy pressure across the middle of the abdomen;" mentally deranged for seven weeks before admission, during which she was at first restless, with keen apprehensions of injury, followed by quiet with tendency to stupor. In the hospital was a typical case of "melancholia with stupor," showing little change for eight months, after which she gradually recovered. She went home in the tenth month; at that time her mind was slightly dull and worked slowly, but she has since been reported as entirely well (now nearly three years). The urine contained albumin, blood corpuscles, hyaline, epithelial and granular casts, during the first month, diminishing during the second, and disappearing entirely after the third month.

Case XXXIV. ——, aged 33, Irish, single, domestic; in America over three years. For two years had been "running down" in health, with no very pronounced

symptoms. Melancholy for four weeks before coming to the hospital; often cried loudly, saying, "My soul is lost!" "Judgment day is coming!" Had in the time two short periods (three hours) of immobility. Had refused food almost entirely for two weeks. On admission, condition markedly resistive, and continued for about a month a mixture of stupor and obstinacy; often required mechanical feeding; a few times made violent attacks upon someone near, without warning or provocation; at the end of that time passed into a condition wholly passive and stupid; stationary for a year, then began to take some interest in the work of the ward, and gradually recovered from that time. The urine, on admission, contained a considerable amount of albumin, hyaline and granular casts; on discharge, no albumin, but a few hyaline casts. While practically well at the time of her discharge, it is doubtful if her mind had quite its former acuteness, and I look upon her as liable to a relapse.

Case XXXV. ——, aged 25, single, parents Irish and German, worked in a mill; no insanity in family. Two months before admission came home from work sick, "seemed to have taken cold;" nine days later began to have melancholic delusions with increasing restlessnesss. With us, she was tormented with self-condemnatory delusions for several weeks, with constant restlessness and suicidal impulses; then improved slowly, and after six months spent a few weeks at home, only to come back worse than before. At home had attempted suicide by setting fire to her clothing. Her mental anguish was now indescribable; for weeks she would walk the floor, wringing her hands, crying aloud and accusing herself; she was always in motion, picking at or tearing her clothing, scraping plaster from the walls, etc., if not constantly watched, not from mischievous propensities but because she "could not keep still." This was two years ago. Six months ago she went home and has engaged in business as a dressmaker. For a year before she was almost well, but seemed afraid to go home. The early records of the urine in this case I cannot rely upon; a year ago a few granular casts and a trace of albumin were found. Early in the case there were several attacks of apparent heart failure, and at her best she was subject to pain about the heart for days at a time; at times,

she had also pain in the left kidney. Pallor was always a noticeable feature; there was a mitral systolic murmur of the heart with accentuated second sound.

Fifth Group.—Cases (4) improved and nearly stationary for years.

CASE XXXVI. ——, aged 52, American, single, teacher, good family history. Insane fourteen years before she came under my care; for the first two years of that time described as being "in a condition of great excitement, during which she made two attempts at suicide; improved and lived at home some years with mind somewhat weakened. A few months before admission became more restless; would leave her home and walk long distances with the idea of getting a position; untidy in personal habits. On admission, December, 1884, walked up and down crying; fretful, dissatisfied expression; attention fixed with difficulty; complexion very sallow. For the past four years has been much improved; has gained flesh, reads and otherwise employs herself; has the freedom of the grounds; expression of face anxious and dissatisfied at times; capacity for continuous application impaired. The urine contains a varying amount of albumin with granular casts. There is a mitral systolic heart murmur.

CASE XXXVII. ——, aged 42, American, widow with two healthy children. History of "pain in back" and headache for three years before admission, during which a natural disposition to worry had been greatly exaggerated, passing at length into delusions of persecution with apprehensions of injury. For about a year after she came to us she continued much depressed, but for the past six years has been much improved; is rather "difficult" to get along with, and is apt to mistrust and misjudge others, but is able to live at home and works industriously. The urine, a year ago, contained a large amount of albumin and granular casts.

CASE XXXVIII. ——, aged 60, Irish, widow; a former attack three years before; insane one week before admission. On admission, restless to extreme degree; would throw herself about the floor and scream for hours at a time; fed with tube for weeks. Improved after six

months, and for the past two and a half years has been almost stationary; memory and other mental faculties practically unimpaired, but she is inclined to worry without cause, and her temper is irritable and uneven; insomnia is a marked feature. On admission, the urine contained albumin, hyaline and granular casts; at the present time (May, 1889) considerable granular debris, but no albumin or casts.

Case XXXIX. ——, aged 45, German, wife of a tailor, with two healthy children; no insanity in family. Eight months before admission had malaria, and about the same time became melancholy, with self-condemnatory delusions and strong suicidal impulses. This patient was for many months one of our most miserably restless cases of melancholia and one of the most persistently suicidal cases I have ever seen. In the earlier stages she often made fierce attacks upon others, with the idea of being hanged if she killed someone. For about three years now she has been quiet, helpful and extremely kind to all about her, but she is always under observation as a suicidal patient, because, at times, the impulse comes back to her with overmastering strength. I have no reliable record of the urine at the time of her admission; at the present time (1889) it contains albumin and casts.

Sixth Group.—Cases (3) running a very slow downward course.

Case XL. ——, aged 31, widow, American; of good family, but married below her station and lived an irregular life for years; became implicated with her husband in some breach of law and was sent to prison, where melancholia developed, said to be a second attack. On admission (October, 1887), expression of face that of abject despair; delusions self-condemnatory; "God has cursed me!" the only words she spoke. Intensely suicidal; at times homicidal (with the idea of subjecting herself to the death penalty if she could kill another). In the following summer she was for about a month in a condition of semi-stupor, with restlessness and delusions that she was grossly maltreated, but for the remainder of the time she has been in the condition of despairing melancholy described above, with strong suicidal propensities

always present; she is subject to pain in the lumbar region, and insomnia is a prominent feature of her case. The urine in this case has always contained casts, hyaline, granular, and sometimes waxy, with albumin, in varying amount.

Case XLI. ——, aged 65, Irish, single; now in hospital nearly three years. Had been generally healthy, but had an "attack of diarrhea" three months before coming to the hospital, which left her weak; two months later began to lose interest in her work; wanted to wander away from home and mistrusted her friends; finally did not eat, sleep or change her clothing. On admission, she was in a restless, almost frenzied condition, resisting everything; in a month passed into a passive condition, in which she has remained, almost without change, to the present time. She is kept in bed, eats well when food is taken to her, submits passively to necessary care, but does not show any interest in anything about her, although her eyes are open and not devoid of intelligence. On admission the urine contained a few casts; one examination, in 1889, showed albumin and an extraordinary number of casts.

Case XLII. ——, aged 56, of German extraction, wife of mechanic, mother of seven children; one paternal cousin insane. Health broken down by "liver trouble" for the previous two years, during the last six months of which she was insane, with delusions of persecution and apprehensions of injury; suspicious of her best friends, and made an attack upon her husband just before coming to the hospital. At times had periods of greater restlessness, when she would make efforts to escape from her supposed enemies. In the hospital (now eighteen months) she has generally been quiet; face invariably expresses suspicion and misery; at times "voices tell her to hang herself;" occasionally restless and makes efforts to escape; complexion extremely sallow; for the past year slowly losing flesh. On admission the urine contained albumin and waxy casts, confirmed by subsequent examinations.

Seventh Group.—Cases (2) illustrating a transformation of melancholia into secondary paranoia, with delusions of personal grandeur.

CASE XLIII. ——, aged 43, of healthy family, American, single. Admitted to the hospital January, 1887, in a condition of melancholia of four years' duration, for the last nineteen months of which she had been in a private hospital for the insane. For the first nine months her whole attitude was that of the most profound dejection; for days she would sit with bowed head, refusing to speak, often to eat; then there would be an interval of a few days, when she would hold up her head, knit, and answer in monosyllables, if spoken to, but never smile, and shunning observation. After nine months (five and one-half years, it will be remembered, from the beginning of her insanity) there was a sudden change and she became as exalted and active as she had previously been depressed and quiet, and her condition has remained practically unchanged for three years. A stranger meeting her might think her merely over-vivacious, with an incessant activity that is almost fatiguing to witness. She is not over ready to speak of her delusions, but if led to it defends her fixed belief that she is "the Queen of Heaven and will never die." She is always usefully employed and very helpful to all about her; she seems never tired. On admission the urine contained albumin (microscopic record not satisfactory). At subsequent examinations there has been a varying amount of albumin with hyaline and granular casts.

CASE XLIV. ——, aged 38, American, single, of good family, and always lived in comfort; never very strong; indulged from childhood and not considered mentally equal to the rest of the family. Admitted to the hospital in September, 1884. "A few years" before had "chills and fever," which left her with pain in the back, apparently increasing in severity. Mentally deranged with apprehensions of injury and hallucinations for two months before coming to me, for the last three weeks of which she was sick in bed. After admission to the hospital she was weak and more or less in bed for several weeks, during which she had often fits of loud screaming; often fed with tube; delusions that "men came into her room at night to kill her;" that her "bed was filled with worms," etc. Gradual development of delusions of personal grandeur, that she is "Queen of the United States," "head attendant of the ward," etc. Otherwise mental action fairly good, and she is noted

for her cheerfulness and activity. Her condition has been pretty uniform for the past three years. I have no satisfactory record of the urine at the time of admission. One examination, a year ago, showed a large amount of albumin with granular casts. At the present time there is a trace only of albumin with many granular casts. There is a mitral systolic murmur of the heart; complexion a pale sallow.

(I omit two cases marked by extraordinarily varied hallucinations, with delusions of persecution, and one of stuporous melancholia merging into dementia, distinguished in the early stages by cataleptoidal tendencies.)

Eighth Group.—Cases (4) of puerperal origin.

Case XLV. ——, aged 38, American, married, and mother of three children. With first child, fifteen years before, had eclampsia and was unconscious for a week. Second child still-born; labor began with convulsions, which continued for four days. During the third pregnancy, five years ago, urine was found loaded with albumin, and convulsions seemed to be averted by a free venesection. Since that time her memory has appeared to be slightly impaired and she has been subject to fits of depression of spirits. Temper uneven for six months; melancholia, with delusions, one month. Urine loaded with albumin just previous to admission. (For the foregoing notes I am indebted to Dr. R. B. Ewing, of Chester County.) On admission (April, 1889), in condition of pronounced resistive melancholia; face turgid, skin hot, tongue brown and dry; refused food and drink and resisted everything with a frightened, staring expression. The condition described was at once relieved by very free venesection, which reduced the case to one of simple melancholia, in which the mind worked slowly but in natural lines. There was notable improvement for three weeks, then she went downward physically; losing flesh for a few weeks and finally almost stationary; her mental state that of simple depression for three months, when I advised a change for her. From her home she has written me several letters during the past nine months, which indicate that she has almost entirely regained her mental tone. She writes that she has a cough, but at the last report she had gained twenty pounds in weight. The urine,

except immediately after the bleeding, has, at every examination, large amounts of albumin and granular casts. Heart fairly normal.

Case XLVI. ——, aged 32, of Irish parentage, married. Five years ago the birth of her first child was followed by a transitory attack of simple melancholia. Present attack came on a few days after the birth of her second child. On admission, eighteen months ago, she was in a condition of wild excitement, which I at first put down as mania, but which more and more assumed the nature of melancholic frenzy, with remissions; before the nature of the case was fully apprehended she had nearly taken her own life, and she has remained persistently suicidal. She is a most difficult patient to deal with, being an unusual combination of aggressiveness with suicidal proclivities. On admission, the urine contained albumin, of which the relative amount has increased and there are also many granular casts. The heart-sounds have been feeble and irregular.

Case XLVII. ——, aged 25, American, married, three children. Five weeks after the birth of her youngest child jumped out of a chamber window "to save her baby;" had previously been dejected and had complained of "ice-cold feeling" at the base of the brain and of a peculiar itching of the soles. Was stuporous, but not profoundly so, during her stay with us, and recovery was gradually accomplished in eight months. On admission, the urine contained granular casts.

Case XLVIII. ——, aged 32, mulatto of superior intelligence; mother and two maternal cousins insane. Two months after confinement with her fourth child became melancholy. On admission, very restless and markedly resistive, soon passing into a semi-stuporous condition, from which she never recovered. Died in three and one-half years, of phthisis pulmonalis. The first examination of the urine, made soon after her admission, showed a few casts; but four subsequent examinations, made at different times, gave negative results. Autopsy: Cortex of kidneys fatty, diminished, in places absent; scrapings under microscope showed casts and fat-globules. Heart fatty, hypertrophied, and dilated. Lungs tuberculous.

Ninth Group.—Cases (2, also puerperal) complicated with chorea.

In regard to the possible relation between chorea and the presence of "uræmic" poisons in the blood, it is, *a priori*, conceivable that a condition which so often produces convulsions might also cause those other irregular inco-ordinate movements known as chorea. I find suggestive mention in some of the books on nervous diseases. Ross* accepts "a causal relation between rheumatism and chorea," and quotes the report of Dr. Mowry, who found "a rheumatic history" in twenty-nine to thirty-two per cent. of his cases of chorea.

Chorea rather frequently follows scarlet fever, a fact which Ross says "may probably be explained by the frequency with which scarlet fever is followed by rheumatism."

Both Ross and H. C. Wood† notice that chorea sometimes occurs during pregnancy, and that cardiac murmurs are a frequent accompaniment.

Bristowe‡ says "chorea presents remarkable relalations with heart disease, rheumatism and scarlet fever."

Case XLIX. ——, aged 28, English, married. During her first and only pregnancy, five years ago, began to have fits of mental depression, which have continued to the present time; the attacks appear to be periodic, coincident with the menstrual epoch; at such times says she feels a strong impulse to kill herself. General choreic movements, of moderate intensity, have been constantly present for about two years. There is no visible impairment of the mental faculties and her general condition is fairly good. The urine contains granular casts and oil globules. There is a mitral systolic heart murmur.

Case L. ——, aged 26, American, married, with two children; domestic relations unhappy. General choreic movements appeared two months after the birth of young-

* "Diseases of the Nervous System," Philadelphia, 1885, P. 680.

† "Nervous Diseases and their Diagnosis," Philadelphia, 1887.

‡ "Diseases of the Nervous System," London, 1888.

est child, now about two years ago; ten months later began to have delusions concerning her own person—at times, of great wealth, etc. Was at other hospitals for a year, and minute history not obtained. On admission (October, 1889), mind very dull; kept in bed; exaggerated choreic movements of all the voluntary muscles. The urine contained granular casts and oil globules; heart action feeble. At the present time has improved a little physically, and shows rather more intelligence; choreic movements unchanged.

Tenth Group.—Cases (3) complicated with epileptiform convulsions—the "epileptiform melancholia" of some authors.

Case LI. ——, aged 37, American, wife of intemperate and abusive husband; two children. History of melancholia five months before admission; in third month had three epileptiform spasms in one night, followed by slight impairment of mind and melancholic delusions; in the fifth month also had several similar convulsions, followed by transient mental excitement. This patient has now been in the hospital eight years, condition pretty uniform throughout; there is slight mental enfeeblement, with tendency to mental depression; no delusions; she works industriously and has the freedom of the grounds. Complexion sallow and waxy. Reports of the urine in the early stages are wanting; there are now (May, 1889) casts and albumin in considerable amount.

Case LII. ——, aged 18, Irish, single; father once insane from injury and recovered. Patient worked in mill; at fourteen years of age had an attack of malaria, of which weakness was a prominent feature; two years ago had a "bilious attack," and was admitted to our hospital (being then sixteen years of age), with general confusion of mind, tending to dullness and obstinacy—occasionally restless, unclothing herself. Recovered in three months. (No satisfactory record of urine at that time.) Returned in two years; at second admission, urine contained hyaline casts. Quiet, mind slightly dull, with delusions of persecution, not very active. Had one convulsion a few days after admission, lasting two to three minutes, and later, another, described by the nurse as epileptiform and of considerable severity. She went home in six

months apparently well. About a year later I heard that there was a relapse, but as she did not come under my care it was probably transient.

Case LIII. ——, aged 44, American, married, no children. Subject to headaches and "pain in the back;" for three months before admission, suffered from insomnia, loss of appetite, increasing mental depression, with apprehensions of injury and suicidal tendencies. On admission, December, 1889, skin very dark sallow; emaciated; apprehensive, worrying, but mind increasingly dull. One examination of the urine at this time gave negative results. In the sixth week following, had an epileptiform convulsion, followed by increased physical prostration. A subsequent examination of the urine showed casts and a large amount of fat. Her condition to the present time (June 1890) has been that of progressive mental and physical decline, and marked by no special symptom.

To the preceding I want to add notes of some recent cases that seem to me of special interest. The first two of these will illustrate the sudden invasion of melancholia, often so disastrous.

Case LIV. ——, aged 55, American, widow, mother of two robust children; no insanity in family; father died of cancer, brother and sister of phthisis. Patient had pneumonia twice, the last attack two years before date, following which her health was less good; she had periods of insomnia and was more than formerly inclined to fret and worry. Twenty-three days before I saw her she had come to Philadelphia from her home in New York on a visit; at that time was under no medical supervision, but seemed to be in a condition of premature decay. Twelve days before I saw her she asked for a hammer "to fix her trunk," and went up to her bedroom, where she was found a few minutes later violently pounding her head with the hammer; she had made a large open wound of the scalp in the top of her head and had bruised her face and temples. On admission to the hospital we found her in a condition of general debility. Heart action very weak, sometimes irregular, with mitral systolic murmur. The urine contained many fine granular casts and fat-globules. She was at

times very restless; often had self-condemnatory delusions; sometimes believed herself "possessed of the devil;" complained much of pain and crawling sensations in the top of the head. She remained with us only two weeks and died at her home a few weeks later, her downward course marked by no special feature.

CASE LV. ——, aged 39, of German parentage, married, but deserted by her husband; two children, youngest six months old. Had been considered ordinarily healthy; subject to rather frequent headaches, mostly frontal, for some years. One week before I saw her, on a rainy day, she had been out and came in quite agitated, saying "Someone had given her poisoned candy;" soon became much excited and said there "were men in the room after her with pistols!" and jumped out of the window (first floor) to save herself. She was brought back and quieted, but during the following night jumped out of a chamber window, under the delusion that someone "was after her to kill her," fortunately sustaining no more severe injury than a sprained ankle. She was taken to a hospital the following day, and came to us at the end of the week. On admission, anæmic, expression of exaggerated apprehension and fear, delusions of persecution and self-condemnation; extraordinary hallucinations of hearing, as the discharge of loud guns near her head, etc. Urine contained granular casts. Improved very rapidly in body and mind, and in three weeks appeared to be well. I was considering the advisability of discharging her, when she relapsed into a condition of acute mania, which has continued now two months; her physical condition is fairly good, and I regard the prognosis as favorable.

CASE LVI. ——, aged 25, American, single; mother of feeble intellect and one brother now insane. Patient had been overtaxed in body and mind, when she was attacked by the epidemic influenza in the beginning of the present year, with considerable catarrhal lung trouble; she had no proper care and was harassed by her insane brother, then at home. Three days before admission to the hospital she became suddenly and violently insane. On admission, her mental excitement was very great and in the form of mania, but it soon became intermittent and took the form of persecutory delusions. The urine con-

tained granular casts at that time; a little later, while passing through an attack of erysipelas of the face, there were large quantities of albumin, granular and blood casts and blood discs, which diminished coincidently with abatement of the mental symptoms. Under treatment she recovered rapidly and well. (Two months.) I made one examination of the urine, about a month after recovery, and found considerable granular detritis, no albumin or casts.

Case LVII. ——, aged 39, of Irish parentage, single; general health always considered good up to January, 1890, when she had the epidemic influenza, took no care of herself, has been in poor health since. For a month previous to admission, April 10th, 1890, had delusions that her family wanted to poison her; insomnia and restlessness prominent features; tried to get away from home. On admission, urine contained albumin and granular casts. Mental condition as described; expression despairing; refused food, and at times fed with tube. At present (June) is improving.

Case LVIII. ——, aged 40, Pennsylvania German, single, domestic; general health has been considered good; not as well as usual for two weeks, but kept at work until three days before admission (May 31st, 1890), when she jumped out of her chamber window to escape imagined dangers. On admission, mind confused, with tendency to stupor, for a few days; then a short lucid interval, followed by a condition characterized by suspicion and obstinacy. The urine contains granular and epithelial casts. Her general condition is improving and she will probably recover.

Case LIX. ——, aged 30, American, married, mother of four children, of which the youngest is four and one-half months old. Subject to frequent "sick headaches" for years; said to have heart trouble and suffers from hemorrhoids. About six weeks after the birth of her last child was taken with the epidemic influenza; "severe pain running up the back and stopping in the top of the head," the most prominent feature of the attack, from which she never got up well. Melancholia, with delusions, showed itself almost immediately; said that there was "an evil spirit following her and controlling her

actions;" accused herself of having "murdered" her child, etc.; insomnia, loss of appetite, periods of great restlessness and rapid physical prostration. Once escaped from her family during the night. General condition since admission (May 26, 1890) very poor; anæmic. Urine contains granular casts and fatty epithelium. Heart weak, with loud mitral systolic murmur. Mentally as described above; prognosis doubtful.

Case LX. ——, aged 32, American, married, mother of two children, youngest nine months old; a paternal cousin is an epileptic. Had malaria in June, 1888, and has been running down in health ever since; additionally depressed by a moderate attack of the influenza in January of this year. Has a slight laceration of the cervix uteri, and was in the Woman's Hospital for six weeks, leaving there two weeks before admission to the Norristown Hospital. About that time began to awaken suddenly from sleep, in the night, in a sort of terror; once tried to get out of the window in her fear. Every night would say, "This is my last night to live." The urine contains granular casts and much granular epithelium; there is a loud mitral systolic heart murmur; complexion very sallow; general condition poor. Now in hospital two weeks; quiet, with self-condemnatory delusions. For the past two months said to have complained much of "creeping sensations" in the back of the head and neck; "pain in the back" has also been a common symptom for two years.

SELECTIONS.

NEUROTHERAPY.

Some Points in the Treatment and Management of Neuroses—By E. C. Seguin (*N. Y. Med. Jour.*, April and May, 1890)—This is a series of four lectures, delivered before the Medical Society of the University of Toronto, March 11 and 12, 1890.

Epilepsy.—The author is a pessimist as to the cure of ideopathic epilepsy, although he had a patient who was free from fits eleven years, and believes that it is *possible* to effect a cure by long-continued bromide treatment. In undertaking a case where the routine bromide treatment is to be pursued it is of great importance to note frequency and severity of the fits and then to experiment, to ascertain the proper dose and the best time to administer. The author has seen unpleasant results produced by thirty grains a day given for a week, while he has given to a strong youth as much as 200 grains *per diem*, with no marked bromism. Children bear the drug well. There is a certain proportion, in adults, between the size and weight of the patient and his capacity for resisting drugs. In organic cardiac or cerebral disease the drug must be given with caution. Acne should never serve as a guide to the dosage of bromides, as this is frequently due simply to an unhealthy state of the skin with over-development of the sebaceous glands.

It is better to use a single bromide dissolved in water than a mixture of several salts. The soda salt is preferred, and large dilution of the dose is insisted upon. An alkaline solution is preferred for this purpose, such as Vichy. As *few* doses *per diem* as possible should be given—partly not to interfere with patient's occupation or school-work, and in some cases to keep the treatment concealed from those out of the family circle. The dose should be given four or six hours before the expected attack, when this can be judged. Treatment must be kept up a long time: they may at times be reduced but must never be wholly omitted. In some cases it is desirable to combine a small amount of chloral with the bromide, especially in status epilepticus.

Petit mal is more intractable. Digitalis and ergot may be of use here.

Arsenic is invaluable for the acne which annoys epileptics. Iron and cod liver oil are frequently called for. Zinc, borax, curare and nitrate of silver, are now believed to be nearly useless.

Of course any reflex irritation which can be detected must be removed, such as adherent prepuce, errors of refraction, etc. Dr. Stevens has greatly over-estimated the part played by "eye-strain."

Chorea.—Arsenic is still the main-stay. To obtain a striking result it is neceessary, in most cases, to go beyond fifteen drops three times a day. After an interval of rest, patient should begin with the same dose with which he left off. Few cases improve until sixteen or eighteen drops *ter die* is reached. Absolute rest must be strictly enjoined. Eye-strain must be carefully looked for, but we again must be careful not to believe all Dr. Stevens tells us. Gymnastics are valuable if judiciously applied.

Migraine.—Cannabis indica is of great value. Here ocular defects play a very important part, and Dr. Geo. Stevens comes in this time for his share of praise for the persistence with which he has urged the importance of the subject. Caffein and antipyrine are valuable. It is a great mistake to forbid these patients to drink coffee, but the beverage should be taken clear without sugar or cream.

Trigeminal Neuralgia.—Aconitine is the most reliable of drugs. Begin cautiously, but give to the point of tolerance.

Basedow's Disease.—Systematic employment of aconitine and bandaging of the protruding eyeballs.

Diet and Hygiene of Nervous Patients.—Excellent rules are laid down. Directions as to rest, exercise, bathing, etc., etc., are given. T. D.

Four Children at a Birth.—Dr. J. DeLeon reports, in the *Dietetic Gazette*, the case of a woman who gave birth to four children, weighing, in the aggregate, nineteen pounds. A wet nurse was not procurable. The children were sustained upon Reed & Carnick's Infant Food. All are doing well. The mother is a blonde, thirty-six years old, and this is not her "first offense," nor can she "prove an *alibi*," as she has three times before this given birth to twins. The record does not state what aliment the husband fed upon.

A Comparison of Hypnotics, New and Old.—Dr. Chas. F. Folsom (*Boston Medical and Surgical Journal*, July 10, 1890) reviews the entire list of remedies of this class. Probably none can be continuously used for a long time in sufficient doses to control troublesome insomnia without occasional dangerous symptoms or unpleasant after-effects:

Bromides diminish the reflex excitability of the medulla, and are vasomotor excitants. They have a wide range of usefulness.

Chloral, in sufficient dose, seldom fails. The danger of the chloral habit, with persistent wakefulness and mental enfeeblement constitute the risks in its use.

Paraldehyde—long thought second only to chloral hydrate, is powerful as a hypnotic—has much less depressing action on the circulation and respiration. It is especially valuable in conditions of mental excitement, where the duration of the sleep may be prolonged by adding morphia. Dose, two to four grammes.

Amyl-hydrate—same dose as last. Less powerful than chloral. Less depressant than paraldehyde.

Urethan, a mild hypnotic, in doses of twenty grains not specially depressing to heart.

Hyoscyamine, in doses of one-half mgm., may be given subcutaneously. It is of value in hysteria and mental excitement.

Hyocine. Dose: One-fifth to one-half, or even one mgm. Useful, especially in maniacal excitement, violent hysteria, delirium tremens, insomnia with agitation in the insane and aged. In some cases restlessness is produced.

Chloralamid. In the experience of the author it has done well in small doses.

Sulfonal is less powerful than chloral, with even less influence on pain. In doses of thirty grains or less it is safe. It is not always certain. Given in doses of five grains, and repeated, if necessary, two or three times, or of ten or twenty grains, and perhaps repeated, it has proved, in the author's hands, a hypnotic of great value in producing sleep which is refreshing, and resembling the natural.

Hypnone is of little value—depressing to the respiratory and cardiac centers.

Ural is less potent than chloral, and more so than urethan.

Somnal has no especial advantage over chloralamid, except that it is more soluble.

Acetal is an acrid hypnotic without advantages to compensate for its being a gastro-intestinal irritant.

Methylal. Krafft-Ebing says it is a safe, certain hypnotic, useful in some forms of insanity with excitement, and especially in delirium tremens, for which he considers it the best hypnotic known. Dose: 0.1 gramme with 1 gramme of water hypodermically.

Phenacetin. Insoluble in water. In the insomnia of overwork, of nervous irritation, in febrile states, or from headache, it is a hypnotic of great value, in doses of five or ten grains, repeated, if necessary.

Acetal, ural, hypnone and somnal do not seem to have sufficient therapeutic value to justify their existence.

Most patients sleep better than they think, and many sleep enough who think they sleep scarcely at all. T. D.

Action of the Constant Galvanic Current upon Microbes.—MM. Apostoli and Laquerriere, at a meeting of the Academy of Sciences, April 28th, 1890, made a report on a series of investigations which they had been carrying on for some time.

They cite first as follows, the conclusions given at a previous report made in August, 1889:

1st, The action of the constant galvanic current upon cultures is in direct relation with the intensity of the current estimated in milliamperes.

2nd, For the same intensity and all other things being equal, it is best to take little note of the duration of the application; the intensity of the current remaining always the principal factor.

3rd, A current of 300 milliamperes and above applied for five minutes constantly, kills the charbon bacteria. Transplantations made with the culture so made, remain sterile, and the inoculation of guinea-pigs is without effect.

4th, A current of 200 to 250 milliamperes applied during five minutes, does not certainly and constantly destroy the virulence: some of the guinea-pigs still die, but later than the test animals inoculated for comparison with the same culture which has not been submitted to the action of the current.

5th, A current of 100 milliamperes and under, even after an application for thirty minutes, does not destroy the virulence: it produces an attenuation which increases with the strength of the current, and which is demon-

strated by the fact that the inoculated guinea-pigs die one or two days later than the test animals.

The experiments since that time show that the effects produced are quite independent of any thermic influence, which accompanies electrolysis and show the different action of the two poles and of the interpolar portion of the circuit.

The conclusions reached are formulated as follows:

1st, We may experimentally suppress the calorific effects of the current and at the same time obtain the destruction or attenuation of the vitality of microbes.

2nd, The positive pole alone destroys or attenuates the vitality of the pathogenic organisms, toward which the interpolar action and that of the negative pole remain indifferent.

3rd, The antiseptic action of the positive pole (in a distinct culture medium, entirely separate from the negative pole) is exercised with a weaker electric dose than in the first experiments (where the two poles being contiguous reciprocally diminish their action). Thus the positive pole does not destroy at 50 milliamperes during a period of five to thirty minutes, but beyond that the attenuation commences and progressively increases to become constant from the first five minutes between 100 and 150 milliamperes.

4th, The general conclusion from these researches is that the continuous current in a dose, called medical (from 50 to 300 milliamperes) has no action *sui generis* upon microbe cultures in a homogeneous medium, and that its unique positive polar action should be referred to the liberation of acids and of oxygen.—*La Tribune Médicale*, May 8th, 1890.

Chloralamid as a Hypnotic in Mental Diseases.—Dr. D. F. Kinnier, of New York City (*Med. Record*, July 12th), thus refers to chloralamid as a hypnotic in mental diseases: Chloralamid, has a slightly bitter taste, and can be given in the form of a powder placed on the tongue, or may be given dissolved in alcohol or water. In order to test the efficacy of this drug in the treatment of the insane, it was given in a number of cases.

The hypnotic effect of chloralamid seemed in many instances to be too slowly produced, especially in maniacal cases characterized by much violence. When the drug did produce sleep in these cases the sleep was of a rest-

less character. On the contrary, in some cases of melancholia the drug seemed to act very well, and in a short space of time; but I do not think its hypnotic effects are rapid enough to warrant its use in cases of acute delirious mania, or in cases of great excitement where sleep is urgently required. If given in large doses, sixty grains, for instance, there is no doubt sleep will result in twenty or thirty minutes, but such large doses are apt to produce vomiting, vertigo, and other disagreeable symptoms. In beginning the use of this drug it is preferable to give twenty-five grains and increase to forty-five, which dose can be given without any unpleasant symptoms as a rule.—*College and Clinical Record*, August, 1890.

The Action of Testicular Liquids.—Prof. Brown-Séquard returns again to this subject, which he introduced a year ago to the attention of the Société de Biologie. We said at the time, that whatever Dr. Brown-Séquard proposed, deserved, at least, the serious consideration of scientific men, as his great merits as a physiologist commanded attention, no matter what the first impression was in regard to the matter at present in discussion. Dr. Brown-Séquard, in his present communication, very justly complains that he had been the subject of constant attacks, not only on the part of the daily press (for whose opinion he does not care), but also in the scientific journals, who should, he says, discuss seriously the researches that he is making, which have no other end in view but to elucidate an important biological problem. These studies the doctor has continued, and they have been continued by others, and we shall try to give a short account of the results obtained: First of all, Brown-Séquard only said that when he made his first injections on himself, he saw a considerable augmentation in power in the flow of urine, and a regularity in defecation. With this, he noticed an increase of muscular force and a facility in doing intellectual work that was greater than it had been for years before. *That is all that he claimed.* The rest was the absurd exaggeration of newspapers.

After the first injections Dr. Brown-Séquard made on himself, he went to England for awhile, and on his return here, during the past winter, he was taken ill with a cold, and went to Nice, to pass the worst of the bad weather. During all this he did not make any injections, but finding now that his health was not good he

resolved to try them again; he, however, could not do this under the strict rules as to asepsia that he always surrounds himself with in his Paris laboratory; and, therefore, he thought of another method, which would prevent the dangers of subcutaneous injections, which was *rectal injections.* The results obtained were just as complete and as satisfactory as by the hypodermic method. The injections must be well diluted, and the quantity of testicular fluid employed must be greater, but the results are just as good. There is no danger of complications, unless the liquids are used too concentrated, when a slight irritation may be created. He injected, each time, the liquid obtained from the trituration of two testicles of guinea pigs, diluted in fifty centigrammes (cubic) of water. That of other animals can be used (rabbits, dogs, sheep, or calves, etc.). Dr. Brown-Séquard again asserted that the effects produced on him were as stated, but he preferred to give the results of others' work. Leaving aside the rash and foolish attempts of all sorts of people, he only spoke of scientific men who tried it properly. In certain cases of cachexia from malarial fevers, its results were wonderful, in others of ataxia locomotrice the amelioration had been remarkable in some cases, while in others no results had been obtained. Good effects were obtained in certain hemiplegias, consecutive to cerebral lesions. In certain dyspepsias, and in cases of incontinence of urine, the results were very evident. M. D'Arsonval had tried it on a celebrated French *savant*, who had been obliged to give up his work, owing to incontinence of urine, and curious shivering attacks, which came on without known reason. After the first injection all his troubles ceased like magic, and he was able to resume his studies. It is above all in anæmias, no matter what their cause, that Dr. Brown-Séquard finds the most use for his method, and he gives a remarkable case of a doctor whose method he does not approve of, but the demonstration of its wonderful efficiency he has seen. The doctor's wife, in question, was worn out after a metrorrhagia, that left her in a complete state of anæmia. He, believing in the virtue of testicular injections, had connection with his wife, and secured the sperm, which he injected under her skin a cubic centimeter at a time, with most wonderful results, and notwithstanding the fact that the metrorrhagia was repeated several times, the same treatment cured the patient every time.

This would seem to establish the fact that sperm has the same action as the testicular fluids of animals secured by trituration, but Dr. Brown-Séquard does not approve of this method, fearing septic complications from the injections. Most of the attempts made during last year were on persons really ill, but the real value of the method should be shown on old and weak persons, and Dr. Brown-Séquard hopes that those who experiment with his method will publish their observations. In answer to the objection that was made against this system, that it acted by suggestion, Dr. Brown-Séquard does not deny the influences of suggestion, in all the affections of the nervous system, and he repeats that it is on the cerebro-spinal axis that the remedy acts, but he has made experiments to prove that it is not suggestion that acts here. For instance, in certain cases several injections were needed before any effect was produced. In other cases colored water was used, telling the patient that a remarkable effect would be produced, but none was observed; but on the same patient being given an injection of the real matter, and being told it was nothing, a good effect was produced. Prof. Mairet, also injected the testicular fluids in idiots, who could not understand, and yet it was a success. The conclusion of the whole matter is the same as that announced by the eminent Professor, Brown-Séquard, a year ago, that is, *that the testicular fluid has a powerful tonic influence on the system.*—Paris letter to the *Times Register*, July 12.

NEUROPATHOLOGY.

The Relationship of Somnambulism to Epileptoid and Epilepsia.—Dr. C. H. Hughes, in the *Times and Register*, of Philadelphia, for July 5, writes an interesting note on the above subject, in which he discusses the subject of somnambuliform automatisms which occur in place of the ordinary epileptic explosions:

"Somnambulism is a morbid state of the brain, a nocturnal cerebral vascular psychosis closely allied to epileptoid. I think it has been allied to epilepsia by other observers than myself. It involves the psycho-motor area of the brain as epilepsia does, and has its exact counterpart in many of the automatic alternative states of epileptic disease. I have been for many years so thoroughly satisfied of this fact that I have treated and broken up the habit in a

number of instances, in a manner similar to the management of a case of epilepsia mitior, and have invariably (of late years especially) advised treatment of all somnambulists.

"I have personally known many instances where somnambulism has taken the place of hysteria and epilepsia in neurotic families, and several where a somnambulic father or mother has borne an epileptic child; and several instances where I suspected epileptics to have been the product of a coitus in which father or mother was in the trance state of inebriety, or the automatic mental state that sometimes follows or supplements an epileptic fit; but not until during the past week have I seen an epilepsia in a child traceable to unconscious copulation on the part of the father while in the nocturnal automatism of the somnambulistic state. This man was so profoundly unconscious in his somnambulism that, on one occasion, he broke a window with his fist, to jump out, without being awakened till his wife dashed water on him and did some other things to arouse him.

"The father seemed to think that, because his wife's conception dated from one of his unconscious somnambulistic periods, that this was the all-sufficient explanation of his child's epilepsia. The child's mother died of phthisis, and never had hysteria, epilepsia or other marked neurotic trouble.

"You have seen proper, in your issue of May 24, to refer to the case of a boy reported elsewhere by me, who 'completely undressed himself, crying as if in fright, and then replaced his clothing; no convulsive act following or preceding. He would struggle till the fit was over if interfered with.' And to another, who 'arose one night at the time of the fit, dressed himself, walked to his barn and pasture, looked several times at his watch, returned, undressed methodically, and went to bed; from which he arose next morning unconscious of the occurrence.'" T. D.

Homonymous Hemianopsia; Recovery; Subsequent Death and Necropsy.—Anderson (*Ophth. Rev.*, December, 1889) reports the case of a man, aged forty-one, who complained of failure of vision for six weeks, with severe frontal headache, much failure of memory, and mental depression. He could not see to the right side, and his speech had altered. No loss of gross motor power or of general or special sensation, except as regards vision. The gait and

reflexes were normal. The ocular and pupillary movements were normal, and the media and fundus were healthy. Vision and accommodation were normal. The right halves of both visual fields were lost up to, but not including, the line through the fixation point. Anderson concluded that the patient had an intracranial growth, situated in the medulla of the left occipital lobe, and that a hemorrhage had taken place into the tumor recently. Within two weeks the headache and mental symptoms had much subsided, and there was only very slight contraction of the right halves of the visual fields. Two months subsequently he had a transient attack of left hemiplegia, which soon passed off. Three weeks after the occurrence of the hemiplegia the lower quadrants of the right halves of both visual fields were deficient nearly to the vertical line through the fixation point. Vision was still good, and the fundus was normal. Rapid mental deterioration ensued, and he died demented, three months later. There was a recent blood-clot in the posterior cornu of the left lateral ventricle, with hemorrhage and softening of the tissue external to this, involving the whole of the angular gyrus up to its surface. The angular gyrus was replaced by gliomatous tissue.

Recovery from Hemianopsia, with Subsequent Necropsy.—Doyne (*Ophth. Rev.*, December, 1889) reports a case of an old man who had a sudden attack of right homonymous hemianopsia. The fields of vision recovered in the course of two weeks, but subsequently a quadrant of the opposite side of each field was lost. Death occurred some weeks later from cerebral apoplexy. At the autopsy, in addition to the extensive extravasations which caused death, there was found asymmetrical softening on both sides of the brain in the cortex of the occipital lobe, one evidently more recent than the other.

NEUROPHYSIOLOGY.

Note on Why We are Right-Handed.—By C. H. Hughes, in *Western Medical Reporter*.—It is astonishing how much fruitless discussion this subject has elicited, and yet the explanation appears simple. It may be intimated that this is so to us because we are simple-minded. Yet we believe the true explanation is an anatomical and physiological one, and explains not only our right-handedness,

but the preferable use of the right eye in sighting, and these facts explain the preferable writing from left to right, the sitting with the right side to the writing desk, etc., in our day at least. It seems more convenient to write thus, etc., though the ancient Jews, who were right-handed, wrote from right to left in their books. Bichat, the great French physiologist, in 1805, in his researches *sur la vie et la mort*, attempted an explanation of the fact, which in fact was no explanation, for he attributed the preferable use of the right hand to social custom.

Social custom no doubt has something to do with the perpetuation of the prevailing right-handedness, in lieu of the more useful ambidextrous which it is possible to the human race, but how we came to be right-handed originally is the question. Gratiolet's theory of the precocious development of the left hemisphere of the cerebrum, and views of Broca subsequently taken up by Ferrier and other physiologists, that it is the driving side and the initial of mechanical action is doubtless true, but this only amplifies rather than explains the fact that civilized man is ordinarily right-handed.

Without discussing the many reasons offered by others and attempting to show their incompleteness or fallacy, to our mind this is the true explanation:

The first reason is that the mother when she has given birth to her child, usually assumes position, lying on the right side. She does this because it is the most restful position, because her liver, the largest of her viscera after the womb is emptied, lies on the right side. Lying on her right side she naturally takes the babe to her bosom and places it in the most natural and restful position for herself and the infant.

This is resting on her right arm with its left arm confined against her breast. The first effective hand movement to the babe at the breast in this position, is with the right hand. It is thus the habit of right-handedness is initiated and established, and it is thus that the whole right side is first brought into action—even the right eye. As the child grows older and comes to sleep by itself and its liver enlarges, it assumes the position in sleep most restful and natural. It sleeps by preference on the right side, and should it grow up to become a mother it repeats the process of the mother before it, and this is the early *post-natal* predisposition given to the habit which subsequent convenience, training and custom perpetuate.

One might go into the discussion which has occupied Ogle and others as to whether birds are generally right-legged, *i. e.*, whether they perch by preference on their right leg, or whether only parrots do so; but it would not be germane to the present inquiry, though the explanation that the weight of the liver causes these birds to perch on the right leg has been made.

Bulbo-Cavernous Reflex.—At a session of the *Société de Biologie*, on May 3rd, 1890, M. Onanoff proposed to designate under the name of bulbo-cavernous reflex, the smart contraction of the ischio and bulbo-cavernosus muscles [*erector penis and accelerator urinæ*] which mechanical excitation of the glans produces in the normal man.

Clinical researches which he has just carried on with regard to this phenomenon have already permitted him to establish some considerations of real value as to prognosis and diagnosis of certain nervous diseases.

For this examination he proceeds in the following manner: The index finger of the left hand being placed upon the region of the bulb of the urethra, the right hand rapidly rubs the dorsal surface of the glans with the edge of a piece of paper, or again lightly pinches the mucous membrane. In these conditions the index finger applied upon the region of the bulb perceives a more or less intense twitch which is in relation with the contraction of the ischio and bulbo-cavernosus muscles.

Here are the results furnished by study of this new sign:

In sixty-two adult subjects regarded as healthy, or at least exempt from all appreciable neuropathy, the bulbo-cavernous reflex has never been absent.

In aged persons who had lost their virility, on the contrary, the reflex in question is abolished or scarcely perceptible.

In three cases of common hemiplegia, where the genital functions were not influenced by the disease, the reflex was normal and without exaggeration.

In two cases of transverse myelitis, situated at the level of the superior lumbar region, the reflex was manifestly exaggerated. In these two cases the erection took place without the knowledge of the patient.

In progressive locomotor ataxia it is to be remarked first that as a general rule the urinary troubles appear to have no influence on the bulbo-cavernous reflex.

On the other hand, when the reflex exists in these patients, they have preserved intact or exaggerated their sexual function, while when it is abolished they never have complete erections. Nevertheless, it may occur that certain tabetic patients have seen their genital function diminish although they have preserved the reflex. But then the impotence will be transient and the return of the function is the rule under the influence of treatment (suspension). On the contrary, if with that same diminution of the genital function there is observed the abolition of the reflex, we may foresee that the impotence will be lasting and the treatment ineffectual.

It results that in this category of diseases the presence or the absence of this sign is very important for the prognosis of genital trouble. M. Onanoff adds that it appears to him to be prudent to speak with some reserve by reason of the small number (thirty-four) of his observations on ataxics. In the last place the same sign may aid in the diagnosis of certain cases of impotence of such difficult pathogeny as we observe in urinary, hemorrhoidal and divers neuropathic patients. In all these cases, in fact, the bulbo-cavernous reflex is never wanting, and it is habitual that the genital functions reappear under the influence of the treatment of the principal disease. The author cites in this respect an instructive fact. In a case of diabetis mellitus, with loss of patellar reflex and abolition of genital functions, the bulbo-cavernous reflex persisted although feeble. Now when the diabetes improved, for some time under the influence of the treatment, the bulbo-cavernous reflex became alike stronger at the same time that the patient remarked the awakening of his genital functions.

In nine cases of neurasthenia with complete or partial loss of the genital functions, the bulbo-cavernous reflex was absent in no case.

It is not without interest to determine that the reflex does not depend on the sensitiveness of the mucous membrane of the glans. In fact, an exaggerated bulbo-cavernous reflex was noted in some tabetics in whom this sensibility was greatly impaired. But then the voluptuous sensation was wanting in the patients although the erection was complete and persistent.

In *résumé:* 1st, There exists in man in the normal state a reflex which may be called "bulbo-cavernous." 2nd, In cases of troubles of the genital function, (*a*) the

presence of this reflex will indicate a dynamic origin and will permit a favorable prognosis; (*b*) the absence of this reflex will be the sign of an organic lesion and will involve a grave prognosis.—*La Tribune Médicale*, May 8, 1890.

CLINICAL NEUROLOGY.

Convalescence from La Grippe.—M. Heuchard remarked at a meeting of the *Société Médicale des Hôpitaux*, May 2nd, 1890, that among persons who have been attacked by *la grippe* some are found who have not yet fully recovered. There persists in these patients a state of physical and intellectual depression, a sort of *post-grippal* neurasthenia, sometimes general, sometimes localized to a system or to an organ.

This neurasthenia is ordinarily treated with arsenic and iron. But it is necessary to say that the favorable action of these agents is too slow in manifesting itself and that, in consequence, in these conditions, it is preferable to have recourse to a more energetic medication, allowing to procure results in some sort more immediate. In this respect it is indicated to prescribe strychnine, caffeine, the phosphates and the phosphide of zinc.

He administers strychnine in the form of sulphate in an aqueous solution, so that the patient takes daily two to three milligrammes ($\frac{1}{32}$ to $\frac{3}{20}$ grain) of this salt. We may have recourse to the granules of arseniate of strychnia, containing a half-milligramme ($\frac{1}{120}$ grain) each, in the dose of three or four a day. Caffeine he gives hypodermically or in cachets, associated with the salicylate of soda.—*La Tribune Médicale*, May 8th, 1890.

PSYCHIATRY.

Kleptomania.—We cull from the columns of the *Courier des Etats-Unis*, the New York organ of the French-speaking population of the United States, the following report by its vigilant Paris correspondent, of a case of kleptomania, the victim of which was recently saved from conviction for theft, before a tribunal of that city, by the expert testimony of an alienist so competent to form a scientific opinion—Dr. Garnier, of Paris. We join in the felicitation by the French reporter, that the morbid emotional impulse, known as kleptomania, and

irremovably catalogued by psychologists as a mental disease, but which is skeptically rejected as an excuse for crime by most magistrates, should, in the present instance, have been exhibited to the judicial authority in so graphic and convincing a manner as to overcome his scruples, and to secure the acquittal of an invalid woman who manifestly won the interest and pity of the audience, as well as of Dr. Garnier:

Elizabeth Engel, who resided at Charenton with her husband, was arrested on the 4th of April last, at the Hotel de Ville bazaar, with her hand in the pocket of a woman whom she intended to relieve of her portemonnaie. Upon being conducted to the nearest police station, Mrs. Engel, who is twenty-nine years of age, and of sickly countenance and debilitated physique, made no concealment of the attempt at stealing, for which she had been detained.

"It is too much for me," she said; "at certain periods I am forced to steal at any risk."

Police investigation later disclosed that Mrs. Engel bore a good reputation, was married to a skillful and industrious mechanic, and that their domestic affairs were in good pecuniary form. When asked why she had abruptly become a thief, the young woman replied that she had for some time practiced such acts in the large shops and bazaars of the city. She said that at a certain period of the month she was urged to commit them by an overpowering impulse.

By direction of the court Dr. Garnier was charged with a mental examination of the accused, and the following passages are extracted from his report:

"The accused succeeded in explaining to me, in the midst of her sobs, that her extreme physical feebleness necessitated her keeping her room and bed very much of the time. The deterioration of her health she attributes to exhaustion from nursing her infant. Every month, at a particular period, she experiences severe pain in the region of the heart. At the same time she is seized with a sudden wish for the immediate possession of money. This strange impulse nerves her, for the time, to a renewal of strength, and she forthwith lays and executes her plans for the pilfering of a portemonnaie."

"'If perchance,' she says, 'this desire besets me when my husband is absent, nothing preserves me. I am constrained to leave the house at once. I go without any

direct destination; walk until I meet or follow a crowd, and, finally, when I find the circumstances tolerably favorable for gratifying my impulse, I plunge my hand into the first pocket, oppose no resistance to my arrest, and do not try to justify my wrong act. I suffer and tremble when I commit it, and afterwards weep. I only know that it is something beyond my ability to control, that presses me to steal.'"

Dr. Garnier adds that he recognizes in Mrs. Engel's monotonous and periodical repetition of these petty larcenies, in the circumstances under which they are perpetrated or attempted, and in her explanations, nearly all the distinctive characteristics of kleptomania.

The court acquitted the accused, with a warning to her husband to guard her at the apprehended periods of her lapse.

CLINICAL PSYCHIATRY.

Homonymous Hemiopic Hallucinations.—Dr. F. Peterson (*N. Y. Med. Jour.*, Aug. 30, 1890) relates the interesting case of a paranoic (male) who had visual hallucinations limited to the right visual area of each eye. The author designates it as above. This was true when either eye was shut, or when both were open. The limitation of the hallucinations to the right side of vision, the author holds, is absolute proof of their central origin. The cortex of the left hemisphere is probably the chief seat of disease. While cases of unilateral visual or auditory hallucinations are on record, the author claims that this is the first case of hallucinations of the character he records.

T. D.

NEUROTOXOLOGY.

A Case of Antifebrin Poisoning.—A young woman who suffered frequently from headache, was in the habit of taking antifebrin under medical advice. On the 26th of June, while suffering from headache, she took, at 7 A. M., fasting, about a teaspoonful of antifebrin, which she herself shook into a glass of water out of a wooden box. This dose having no immediate effect after about ten minutes, she took such another. Her husband, afraid of the dangerous effects of such a large dose, gave her a glass of milk, and soon afterwards a solution of alum, with the result of producing

emesis. But in spite of that, she soon experienced vertigo, ringing noises in the ears, throbbing in the temples, dull pains in the head, and very great weakness, and the complexion became bluish gray. When Dr. Vierhuff saw the patient, four hours after the antifebrin had been taken, she presented the following appearance: lividity of countenance; blueness of the lips, fingers and toes; remarkable pallor of the whole surface of the body; pupils contracted; consciousness not impaired; heart's action weak; pulse 84, weak; temperature 36.4C. A heaped-up teaspoonful of Carlsbad salt, as a purge, and alcoholic stimulants were given. In about half an hour sudden collapse set in, the heart's action became irregular, the pulse became uncountable and barely perceptible, and breathing very shallow. Consciousness disappeared, and the woman appeared to be moribund. The treatment then consisted of irritation applied to the soles and palms, the dashing of cold water on the body, and the subcutaneous injection of two grammes of a solution of camphorated oil and sulphuric ether. Consciousness gradually returned, but the patient remained extremely weak, and the collapsed condition lasted some three hours and a-half, when improvement slowly set in. After the vomiting of some dark material the patient felt somewhat relieved, and took some milk. Another faint turn occurring, Dr. Vierhuff made a solution of salt which was injected into the skin by means of an irrigator, to which a strong Pravaz syringe was attached. In the space of two hours as much as a beer-glassful had flown in. In the meantime camphorated oil and ether were injected as before. The introduction of this quantity of solution of salt into the circulation appeared to be of the greatest service, but the patient remained in a critical state for fourteen hours after the taking of the medicine. Anæmia and debility remained for some time, and it was a week before she was able to walk in her room.—*Centralblatt fur die gesammte Therapie Wien.*, Juli, 1890.

EDITORIALS.

[*All Unsigned Editorials are written by the Editor.*]

English, American and German Medical Education.—The recent contribution of Professor Potter, of San Francisco, to this subject is so fair, exhaustive and timely an exhibit of the merits of the curriculum and methods of teaching at home and abroad, that it deserves to be carefully read by every student of the question of medical education in this country. And because of its completeness and the very creditable showing it makes for the schools of the mother country, Great Britain and our own best American schools, we should, if space permitted, place it in this issue before our readers. It has been too much the custom in this country to disparage American medical schools in general and English medical schools in particular. The higher class of American colleges of the large Eastern seaboard cities have reaped some advantage from the general underestimating of American schools and the disparaging of the English schools as compared with those of Germany, because the student from the interior, in deciding between a superior foreign school, where the teaching is in a foreign tongue, and an English-speaking faculty, the English-speaking faculty abroad being no better than that at home, would decide to stay on this side unless he felt that he had time and money and inclination to learn a new language with his medical studies, or was already master of the German tongue.

The Eastern seaboard schools would, in consequence, get the student in preference to London or Edinburgh, unless he should decide to go to Berlin, Paris or Vienna, notwithstanding the fact that the best medical men this country had in the remoter past, men who founded American institutions of medical learning and gave character to American medicine, were educated in London, Edinburgh or Paris, though mostly in the two former cities.

London and Edinburgh teach as thoroughly to-day as they ever did, better than they ever did, and as

thoroughly as they do on the continent, and our best American schools are no discredit to any country. They are making as great efforts at progress in thorough instruction and are showing as much ambition to excel in teaching as any of the schools of the old world, and in a short time will not lack the facilities of the best of them for thorough medical instruction, and this too without government aid.

We do not undervalue foreign medical instruction; on the contrary, we would encourage it after a thorough home education. The thoroughly grounded American-bred physician makes a superior practitioner, and when he goes abroad after being well educated at home, he sees much to admire of course in European methods, but he sees there also some things he would not exchange for methods of practice in vogue at home. He envies the governmental assistance given there to medical schools, but while doing so, he knows American *esprit du corps* and ambition and rivalry to accomplish good teaching among the better American schools, has developed institutions of learning, which for practical value to the student in the work before him, are not excelled anywhere.

The biological laboratories and pathological museums of the old world are far ahead of most of our own, and some of their hospitals; but the teaching talent of their schools does not average better than in America's better schools, and the time is close at hand when Europe will exceed America in nothing, save in the number of her relics of antiquity, mummies, old cathedrals, ancient statuary and paintings.

The time is at hand when she will be no further advanced with her medical schools over America than she is with her telegraphy and railroads, sleeping coaches and dining cars, phonographs, air ships, electro-motors or electric lights.

Europe learned from America how to navigate her rivers and the ocean by steam, to traverse it with an electric cable, to girt the earth and the sea with the telegraph. She learned laparotomy and etherization from America, and she will yet learn something in the way of practical medical teaching. She may even learn something in this direction now, and we give it cheerfully in return for what she has given us. America is not, and will not be, a laggard among the nations in anything.

Apropos of the subject we are now considering is an article in the *Medical News*, of August 30th, an abstract of which we deem in place here:

THE PROPER PLACE FOR FOREIGN STUDY FOR AMERICAN MEDICAL MEN.

* * * * Very few medical men in this country recognize that the city of London, with its many millions of inhabitants, must possess a corresponding number of cases of disease and injury, and that the number of its hospitals, the thoroughness of its teachers, and the character of the people, all tend to aid in the pursuit of instruction in the cure of disease. There are other advantages, too, which are even more important. First and foremost is the fact that we all use the same language, and call things by the same names; second, the *materia medica* list is closely allied to our own, and the preparations are almost identical; third, the disease processes seen in England resemble those seen in America more closely than do the diseases of other parts of Europe, and we can study morbid conditions in our own race instead of in races possessed of different temperaments and habits, as well as food and drink.

* * * Very few Americans who do not possess German blood know enough of the German language to understand the terms used by a rapid lecturer in the Fatherland, and, if they do not, they lose that which they chiefly desire, namely the minute points of the subject before them. The average American going to one of the Continental clinics receives most of his instruction from docents, or other instructors of a comparatively low grade, simply because he is one of hundreds who throng not only around the chief but overflow to the subordinates; while in England, notably in London, the number of eminent men is so great, and the percentage of foreign students so small, that each and everyone can sit at the feet of the teacher whose writings are known everywhere in the civilized world. While the student in Berlin or Vienna becomes imbued with the views of the single individual governing a given course, in London he may go from hospital to hospital and obtain different views, and in consequence become a man of broader ideas and greater resource. The fees at the various hospitals are no higher than in Germany, and the student has the privilege of being in the healthiest city in the world. * * * * * * *

So infinite are the advantages of London as a medical center to Continental centers that it seems almost absurd to sing its praises, were it not that so many of our countrymen fail to go there, and the establishment of a post-graduate course, with Jonathan Hutchinson at its head, renders our lack of recognition of our own Fatherland the more culpable.

Besides the non-recognition of American medical degrees in the Berlin universities, the non-recognition of the title of physician held by American graduates attending the Berlin schools, should be indignantly resented.

Every American graduate who can afford the outlay should include in his post-graduate study and observation a term abroad, but he should have manhood and patriotism enough to shun the universities that put a stigma of dishonor on his home *Alma Mater*, especially by a university whose own graduates are so discredited in its own state that they must have the certificate of a state "*examen*" before they can practice Medicine.

Tropho-Neurosis as a Factor in the Phenomena of Syphilis.—Dr. G. Frank Lydston, of Chicago, Illinois, in an exhaustive address delivered before the Southern Surgical and Gynecological Association, advanced the view that all of the phenomena of syphilis are dependent upon tropho-neurotic disturbances incidental to an impression made upon the central nervous system by the *materies morbi* of syphilis. The relation of such tropho-neurotic disturbance he believes to be clinically demonstrable. He believes, moreover, that the character and quality of the *materies morbi* of syphilis is a matter of indifference as far as the results are concerned; whether the impression upon the sympathetic nervous system be due to a degraded cell, a chemical poison, or a special germ, the result is the same. As bearing upon his theory he advances the idea that the so-called syphilitic fever is a result of idiosyncrasy. It bears the same relation to disturbances of nutrition as do those general phenomena induced by shell-fish and other substances in certain peculiarly constituted individuals. The roseola he believes to be akin to certain other eruptions which are known to result from the action of certain poisons upon the central sympathetic nervous system. The symmetrical arrangement of the various lesions of syphilis suggests to Dr. Lydston the existence of some disturbing element in the sympathetic nervous system., which disturbance is manifested by peripheral changes in nutrition. He believes that the tropho-neurotic disturbances incidental to syphilis are most pronounced in the region of the head and face. This would explain why in well treated cases lesions of the mouth, pharynx and scalp are more frequently met with than in other portions of the body. The alopecia of syphilis, according to Dr. Lydston, is not due to the pressure of germinal material deposited about the roots of the hair and hair follicles, but is due to disturbed enervation similar to that produced by lesions of the

cervical nerves or by certain fevers. He quotes in support of this theory the cases of alopecia areata induced by traumatism, reported by Leloir, Dumesnil and others. He also mentions the experiments of Joseph, who divided the spinal ganglion of the second cervical nerve in cats and thereby produced baldness.

The most marked evidence in support of his theory, Dr. Lydston believes to be the peculiar manner in which syphilis dissects out the bones of the naso-pharynx, and in some cases the intermaxillary bone and alveoli of the teeth. He reasons, and logically, that cases of necrosis due to inflammation or to the pressure of pathological exudates are preceded and attended by pain, swelling and other phenomena; whereas in syphilitic necrosis one may observe complete destruction and perfect separation of certain bones or divisions of bones without any antecedent phenomena indicative of so severe destruction; and so in all the varied phenomena of syphilis, Dr. Lydston has shown certain features which are highly suggestive of disturbance of nutrition due to the action of some powerful disturbing element upon the central sympathetic system. The collection of cells which Otis, Besiadecki and others have shown to be characteristic of syphilitic deposit, Dr. Lydston believes to be the result of hyper-nutrition at various points, induced by the action of the *materies morbi* of syphilis upon the nutritive centers.

The Pathological Findings in Dr. W. A. Hammond's Case of Athetosis.—Dr. G. M. Hammond reported before the late meeting of the American Neurological Society the pathological findings in the original case of athetosis on which Dr. W. A. Hammond's description of athetosis was based. The portion involved in the lesion was a lengthy one in the antero-posterior direction, parallel in its short axis with the internal capsule. Its posterior end had invaded the stratum zonale of the thalamus in its posterior half of the internal capsule. In its anterior extension it had crossed the capsule invading the posterior third of the outer articulus. The author called attention to the fact that the motor tract was not implicated in the lesion, and argued that this case was further evidence of his theory, that athetosis was caused by irritation of the thalamus, the striatum or the cortex, and not by a lesion of the motor tract.

Dr. E. C. Spitzka reported a corroborative case where the lesion was found in the same situation as in Dr. Hammond's case.

Dr. E. C. Seguin presented a paper on atheto-choreic spasm of the right side of the body. The *post-mortem* had shown a glioma of the left thalamus opticus and adjacent internal capsule. Dr. Seguin's views were that all cases of athetoid and choreiform movements following hemiplegia were due to lesions involving the thalamus and adjacent capsule.

The Motor Center for the Larynx.—Drs. J. Garel and Dor (*Journal of Laryngology and Rhinology*, May, 1890) report the case of a man who was suddenly attacked with aphonia. The vocal paralysis was complete but there was no other associated paralysis. After death, three days later, a small triangular-shaped spot of softening was found in the lenticular nucleus of right hemisphere, extending to the outer porion of the internal capsule. Following are the authors' conclusions:

1. There exists a cortical motor center for the larynx in each cerebral hemisphere.

2. This center is located at the foot of the third frontal convolution on the fissure which separates it from the ascending frontal.

3. The fibers originating from this center pass to the level of the external part of the knee of the internal capsule, forming in the geniculate fasciculus a motor laryngeal fasciculus, independent of the fasciculus for aphasia and the hypoglossal fasciculus.

4. The laryngeal center has a crossed action. Its destruction determines total paralysis of the vocal cord of the opposite side (cadaveric position).

A Merited Tribute to Dr. Alice Bennett.—The genial, talented and handsome editor of the *Medical Mirror* reflects the following lovingly beautiful picture of this accomplished fair sister in psychiatry:

Dr. Alice Bennett, in charge of the Woman's department of the Norristown Insane Asylum, read a very able paper upon mental disorders in relation to the kidney. She took the position—and cited numerous cases in evidence thereof—that affections of the kidney are much more frequent than generally supposed, and that accumulated poisons dependent upon lack of proper elimination had much more to do as a cause of developing insanity than had previously been supposed. The paper was admirably presented. There was an abundance of meat and logic backed up by a solid array of facts.

This little woman is evidently in the neighborhood of thirty-five, a clear skin, blue eyes, a fair-haired typical blonde; a face suggestive of

character and firmness coupled with gentleness and a mild persuasive voice which could not be other than soothing to those insanely inclined, and indeed to those even who may be "clothed in their right mind."

She is a very charming, interesting woman, and furnishes one more of the exceptions which are arguments in favor of lovely woman having her way in any calling she may choose. The record made by the Norristown Insane Asylum (female department) is a tribute to the worth of Dr. Alice Bennett.

The Latest Shot at Folly as it Flies, or rather at fools as they go by, is the Gun Wa Laundry Medicine Men. Under the caption "Climax of Quackery," the *Medical News* discusses this last Melican Man Chinese swindle as follows:

An infamous example of quackery was recently brought to light in Milwaukee, in the prosecution of the "Gun Wa Medical Company." The supporters of this fraud have branches in several cities, in which they advertise that they have an eminent Chinese physician, Gun Wa, who is versed in the medical lore of the Oriental schools, and who has a remedy for every disease to which flesh is heir. This "physician" is generally some ignorant laundryman who knows too little English to be able to communicate with those who would consult him. He therefore has an interpreter—in Milwaukee this was "Doctor" Jansen—and this "interpreter" does not know a word of Chinese. During the active operations of this swindle in Milwaukee, this alleged famous Chinese physician, Gun Wa, was personated by three different laundrymen. It is not easy to conceive of a more barefaced and impudent imposition than this, which has been practiced with considerable success in several Western cities.

We have the same *Gun* doing the same execution among the innocents of St. Louis, and the same or a similar Oriental trinity of quacks is at this moment working Denver and Minneapolis, we believe. Shoot 'em! Gun Wa. "Melican man big foolee anyway, and he belly much likee smart foolee John Chinaman."

Dr. James A. Lydston, late Chief of the Eye and Ear Department of the Pension Bureau at Washington, has been elected Professor of Chemistry in the Chicago College of Physicians and Surgeons. The College of Physicians and Surgeons has made a good selection.

The Ale and Beef Company of Dayton, Ohio, sends us several excellent testimonials. Among them one from Dr. Willis P. King, Assistant Chief Surgeon, whom we personally know. It requires no testimony to convince us of the practical value and adaptability of

this sensible compound in states of gastric atony and general debility.

Dr. La Loggia.—The fervent and beautiful memorial oration of *Salemi Pace* delivered over the grave of *La Loggia*, one of the brightest of Italia's great departed leaders in psychiatry, came to us through the fraternal courtesy of one of Toronto's most accomplished young physicians, whose well-earned and worthily-borne title was, through inadvertance for which we now beg pardon, omitted. The doctor, we are credibly informed, is as fair and witty as she is accomplished and skilled in her profession.

With our apology for dereliction referred to we tender the doctor our grateful thanks, and hope she may again favor the ALIENIST AND NEUROLOGIST with more of the good work of her pen which is so facile in translation. She did not sign "M. D.," and we neglected to add the title to the MS. Not all of her sex say or speak less than they should.

[The name of the doctor is Miss Susanna J. Boyle, Toronto, Ontario.]

"To the Medical Profession."—We have received from the Maltine Manufacturing Company portraits of a number of sickly-looking distinguished medical men, with a card accompanying, saying, "the demand for Maltine with cod-liver oil has steadily and constantly increased since the publication" of this pamphlet.

No wonder! Some of them look as though they needed cod-liver oil and maltine, while some would do for pictures "after taking."

We regret to see such caricatures of fine professional faces, and think the Maltine gentlemen might put our professional brethren to better uses than service as advertising boosts for Maltine and cod-liver oil. These portraits are a doubtful compliment to the medical profession.

The American Neurological Society has increased its membership considerably during the last few years. The society is vigorous and its growth steady and healthy. Its perpetuity is assured. The increase in membership would be more rapid if those neurologists and alienists, who are not now members, fully appreciated the benefits to be derived from affiliation with the society. We are indebted to Dr. G. M. Hammond, for a copy of the Constitution, By-Laws and list of members.

HOSPITAL NOTES.

ST. LOUIS INSANE ASYLUM.—Twenty-first annual report for year ending March 31, 1890. At the beginning of the fiscal year there were in the Asylum 549 patients, 206 males and 343 females. During the year 230 were admitted, 123 males and 107 females, making total number under treatment 779, 329 males and 450 females. Of these 91 were discharged recovered, 44 males and 47 females; 20 improved, 10 males and 10 females; 16 unimproved, 7 males and 9 females; 8 not insane, 4 males and 4 females; 41 died, 10 males and 31 females; 127 were transferred to insane department of St. Louis Poor House, 49 males and 78 females. Number remaining under treatment March 31, 1890, 476, 205 males and 271 females. Daily average number of patients, $539\frac{5}{12}$, $212\frac{8}{12}$ males and $326\frac{9}{12}$ females. Percentage of deaths on whole number under treatment, 5.26. Percentage of recoveries based upon the whole number treated, 11.6, and of recoveries on number admitted during the year, 39.5.

After seventeen years' agitation, increased accommodations are to be supplied. Dr. Atwood strongly recommends the following improvements and changes: the erection of an infirmary, of an associated dining-room and the improvements of the grounds.

A tribute is paid to the memory of the late Dr. Chas. W. Stevens, the first superintendent of the asylum.

T. D.

Reviews, Book Notices, &c.

Have We Two Brains or One? Our excellent literary cotemporary, the *Forum* for August, contains a characteristically entertaining and masterly essay, captioned with the above interrogatory, by our former fellow-citizen but now renowned Parisian *savant* in physiological science, Dr. C. E. Brown-Séquard.

In 1844 an English physician, Dr. A. L. Wigan, ventured boldly into this realm of study answering the suggestion of Goethe; Zwei "Seelen wohnen, ach! in menier Brust," in the following manner:

"The two hemispheres of the brain are really and in fact two distinct and entire organs, and each respectively as complete (indeed more complete), and as fully perfect in all its parts, for the purposes it is intended to perform, as are the two eyes. The corpus callosum, and the other commissures between them, can with no more justice be said to constitute the two hemispheres into one organ than the optic commissure can be called an union of the *two eyes* into one organ; and it would be just as reasonable to talk of the two lobes or globes of the eye, as of the two hemispheres of the brain. The decussation or the fibers in the corpora pyramidalia is not merely visible, but proved by innumerable consequences necessarily resulting from it, as hemiplegia and paralysis. Each set of fibers retains its separate functions in passing to the opposite side, and to the opposite columns of the spinal marrow. That some of the powers and functions may be combined in the medulla oblongata, or in the protuberances which occupy the cavities at the base of the bony cranium, is no greater objection to the absolute completeness and individuality of each hemisphere of the brain, or evidence of their forming but one organ, than the fact of our seeing only one object with two eyes proves that the two eyes are not distinct, complete and separate organs, each capable of acting alone, when its fellow is injured or destroyed.

In the *Forum* for April, 1888, Dr. Brown-Séquard, in an article on Cerebral Localization, has already given a number of arguments against the prevailing doctrines relating to the mechanism of brain functions. From that article he reproduces the following conclusions:

"Nerve cells endowed with any of the cerebral functions, instead of forming a kind of cluster, as is supposed, are disseminated through the whole encephalon, so that considerable alterations or destructive lesions can exist in one of the cerebral hemispheres, or in both, without the loss of voluntary movements, of sensibility, or of any other brain function. 2. The complete disappearance of any cerebral function, in cases of organic brain lesion, is due to a suppressing influence exerted on all the nerve-cells that have a share in that function, in either the encephalon or the spinal cord. The mechanism of that disappearance is that of inhibition, such as takes place in the heart when the activity of that organ is stopped by an irritation of more or less distant parts."

The electrical excitation proofs of cerebral localization he disposes of in this way:

"It is well known that certain parts of one side of the surface of the brain can, when excited by galvanism, in mammals, give rise to movements in the limbs, face, eye and trunk, on the opposite side. Those parts are called psycho-motor centers, and they are looked upon as acting on muscles by nerve currents descending to the crus cerebri, the pons Varolii, and the anterior period on the same side, passing, where the pyramids decussate, into the posterior part of the lateral column of the spinal cord on the other side. That this view must be rejected is clearly proved by the following facts:

"After having ascertained what degree of galvanic power can produce certain movements in the limbs, face, etc., on the side opposite to that of the psycho-motor centers which I irritate, I divide transversely either half of the pons Varolii, or of the medulla oblongata, including the anterior pyramid, or the crus cerebri, on the side of the galvanization. I then apply again the same galvanic current to those pretended motor centers, and I find that, although the only supposed channels of communication between the brain on the excited side and the muscles on the opposite side, are divided, the action of galvanism is greater, as the movements are more energetic. If the doctrines which are admitted were true, no movement at all could then be produced.

"In other experiments, I have ascertained that after the section of both anterior pyramids, the two so-called motor centers can act so as to cause movements almost as well as when the whole nervous apparatus is normal, which clearly shows that the pyramids are not the only, and not even the principal, channels by which irritations applied to the supposed motor cerebral zone are transmitted to muscles."

The author asserts that in a large number of cases "paralysis is not due to the loss of a supposed function of the part injured, but that it is a consequence of an irritation that acts on distant parts."

One of the best arguments, the author maintains, against the views that paralysis depends on the fact that the lesion with which it is allied has destroyed parts having a motor function, is to be found in cases of direct paralysis. He has seen such cases. In one of them the autopsy of the patient was made at the *Charite* Hospital, of Paris, in presence of Drs. Rayer, Tailhé and Prof. Lebert. In another case, that of a patient who consulted the author at Cambridge, Mass., he diagnosed the presence of a tumor at the base of the brain on the side of the paralysis, and this was confirmed by the autopsy, made long afterward by Dr. Edes, of Boston.

The author asserts that every part of the brain and every kind of lesion can produce a direct paralysis. Of the well-known medical observers who have seen it, he names only, among the French, Andral, Bayle, Bourneville, Cruveilhier, Dechambre, Gintrac, Gubler, Hayem, Jaccoud, Baron Larrey, Rochoux, Rostan, Trousseau, Valleix, Vulpian; among the English, Abercrombie, R. Bright, Bristowe, Callender, Cheyne, H. Day, J. Hughlings Jackson, J. W. Ogle, Ramskill, Sharkey, Stanley, Toynbee, Sam. Wilks; among the Germans and Austrians, Albers, Arnold, Drozda,

Foerster, Lebert, Nasse, Petrina, Virchow, Wenzel; among the Americans, Drs. Horner, of Philadelphia; Enos, of New York; Abbot, Edes, Gould, Homans, Wellington, of Boston.

As an effort has been made to escape the verdict of those facts, on the supposition of Longet, Hilton and other writers, that the direct paralysis is due to the absence of the decussation of the anterior pyramids, Séquard says, "decussation existed in the only three cases of that kind of paralysis in which an examination was made of the anatomical condition of the pyramids," Those cases were published by Drs. E. H. Dickinson, Blaise, and Féré and Arnold, whose papers he has quoted in an article on this subject, in *Archives de Physiologie Normale et Pathologie*, 1889. Among the arguments he made use of in that paper with regard to the value of the decussation of the pyramids, he has shown that while that crossing is not known ever to have been missing in any case of direct paralysis, this kind of loss of movement is extremely frequent when disease is located in certain parts of the brain. Indeed, according to a statistical account he has made in cases where unilateral lesion in the medulla oblongata has given rise to hemiplegia, this loss of motion appeared on the side of the lesion in one-half of those cases. If now we compare to that proportion that which exists in cases of disease of the so-called motor zone of the cerebral surface, we find that the proportion of cases of direct paralysis is less than one out of a thousand cases of unilateral paralysis. He thinks the decussating fibers of the pyramids have nothing to do with the existence of direct or cross paralysis.

Dr. Brown-Séquard boldly controverts the generally admitted views that paralysis in cases of brain disease, should appear only when a lesion exists in certain parts considered as forming exclusively the motor centers and track, calls attention to the fact that there is on record a very large number of cases where paralysis has been caused by an injury or disease located very far from these centers and track, refers to his *London Lancet* papers on this subject as far back as 1876, and maintains that paralysis "depends" on an irritation of the brain tissue and not on destruction of conductors or centers endowed with a function which disappears. We quote:

"Paralysis depends so clearly on an irritation of brain tissue, and not on the destruction of conductors or centers endowed with the function which disappears, that, as I have shown in 1879, in 125 out of 181 cases of tumor pressing on one side of a certain part (and always the same) of the base of the brain, there was the excessive variety of paralytic manifestations exhibited in the following table:

1.	Paralysis of	the two limbs on the side of the lesion	37 cases.
2.	"	one arm " " "	3 "
3.	"	" leg " " "	1 "
4.	"	the two limbs on the opposite side	21 "
5.	"	one arm " "	8 "
6.	"	" leg " "	4 "
7.	"	the two lower limbs (paraplegia)	23 "
8.	"	" upper " (brachial diplegia)	1 "
9.	"	one arm in one side and leg in the other	1 "
10.	"	three limbs	4 "
11.	"	first of limbs on side tumor, then of other limbs	2 "
12	"	of the four limbs	20 "

The author thinks "the most decisive argument against the view that we have but one brain for voluntary movements, comes from cases of destruction, in man as well as in animals, of some parts of the supposed motor centers or conductors, or of almost the whole and even the whole of a hemisphere, without paralysis.

"It is perfectly well known that, excepting in animals highly placed in the scale of mammalia, we can take away a lateral half of the brain without producing a persistent paralysis, It is, of course, manifest in such a case that all the voluntary movements of the two sides of the body can be performed by one-half of the brain. As regards man, facts abound showing that destruction of every individual part of one hemisphere can take place without the disappearance of the voluntary motor functions. Leaving aside cases of tumors or abscesses, there are on record, to the author's knowledge, more than fifty well-authenticated cases of considerable lesion or complete destruction of the so-called psycho-motor centers on one side, without paralysis. A good many of the authors to whom we owe these facts are men of high-standing, and some are physicians of real eminence. Among the best known to fame the author names Vulpian, R. Bright, Andral, Fürstner, Murchison, Longmore, Poncet, H. Day, Luys, Magnan, Duplay, R. Boyd, DeFleury, König, Lecorché, Campbell, R. Quain."

The author thus handles the doctrine of cerebral vicarious function:

"In presence of such facts, a number of able clinicians, without, however, coming frankly to the view that I hold, have tried to explain them by supposing that some other parts of the brain can take up the function of the diseased organ and act in its place. With regard to this, two suppositions have been made. According to one, this replacement occurs in the same side where the lesion exists, and according to the other, it is performed by parts of the opposite side of the brain. This second supposition is in direct opposition to numerous facts showing that a complete destruction of the so-called psycho-motor centers on the two sides can take place without the disappearance of the voluntary movements anywhere. I have collected and published a good many facts establishing this point, and I will mention the following authors as the best-known among those who have seen such cases: Billard, Marcé and Luys (two cases), Sirecey, Parchappe, J. Hutchinson, Bouillaud, Gama, Sims, Gintrac, Wernicke, Fürstner, Broca, R. Bright, Poumeau, Brière, Lenormand, Abercrombie."

Pursuing the demonstration further, he says, "if we examine what occurs as regards the parietal lobe of the brain alone, or the posterior part of the frontal lobe, we find that there are a great many cases of destruction of these middle portions of the cerebrum—which are looked upon as absolutely essential for voluntary movements—without paralysis supervening. Among the observers to whom we owe those cases, I will name Prévost and Cotard, R. Bright, J. G. Forbes, Warren, Guérard, Bossu, Lagout, Gintrac, Fowler, W. Jones, T. Bryant, Oulmont, Montault, Girard, T. Thompson, A. B. Duffin, Porral, O'Hallaran, C. Holthouse, Dumon."

And thus he explains: "Before reaching the base of the brain, the fibers establishing a communication between it and the cerebrum are

chiefly, if not entirely, congregated in the internal capsule. It is evident, therefore, that a destructive lesion of that part alone, or with the corpus striatum and the optic thalamus, must be the cause of a complete paralysis on the opposite side of the body, if the reigning doctrine on cerebral duality is right. It is not so always, however, as shown by a number of cases published by Gintrac, Lagardelle, J. Russell, and Delbet. I have decided not to make use of cases of tumor, on account of the fact that the fibers and cells of the brain may remain partly able to act although considerably squeezed. Still, I am entitled to employ cases in which there was a real destruction of the internal capsule by a tumor. There was no paralysis in some such cases published by B. Ball, A. Denmark, Barié, Mueller, and W. B. Hadden."

The brain, a part which gives a large proportion of cases of destructive lesion without paralysis. Among the authors who have given such facts, with regard to the crus cerebri, Dr. Brown-Séquard names Sander, Elam, Callender, J. Hughlings Jackson, Hayem, Stiebel, H. Roe, J. W. Ogle, Squire, Reynaud-Lacroze, Leboucher, Raikem, Abercrombie, E. A. Parkes, Landouzy, J. B. S. Jackson.

"As regards the pons Varolii, a destruction of a great part of oneof its lateral halves, including the whole of the supposed motor track, has frequently been recorded in cases with a very slight paralysis, or none at all. The following are the best-known among the observers to whom we owe such cases: F. Mason, C. Mills, Broadbent, Gay, Moutard-Martin, Raikem, J. R. Bennett, Van der Byl. Regarding the medulla oblongata, I will name also the most prominent observers. They are: Vulpian, Cruveilhier, Raikem, Martineau, Taylor, J. Johnson, Middleton, Michel, Royer-Collard."

The author goes on to say: "It is evident from all these cases that one-half of the base of the brain is quite sufficient to convey to the muscles of the two sides of the body the orders of the will coming from either one or the other of the two cerebral hemispheres.

"The facts remaining to be mentioned are among the most powerful to show that one-half of the brain can originate all the voluntary movements of the two sides of the body. They consist of cases of considerable alteration, if not of destruction, of a whole cerebral hemisphere, without paralysis, or with only a slight paresis. I will mention among the observers who have published such cases, the following: Belcher, Tacheron, Serres, Abercrombie, Monod, G. Lowther, Cless, Guéneau de Mussy, Rendtorf, H. Greenhow, Porta, Th. Bryant, Rendu, Debierre, Lélut, McReady, Alègre, Hayem.

"I could bring forward many other facts showing, like those I have mentioned, that paralysis can appear where it should not, or may not appear at all, in cases of a lesion which should always produce it in certain parts of the body, according to the generally admitted views. But it does not seem necessary to say more on these points, as I believe that what precedes is quite sufficient to establish that each half of the brain can originate all the voluntary movements of the two sides of the body, and, therefore, that we have two brains for all the muscular actions caused by our will in the four limbs, and other parts of the body.

"Arguments similar to those concerning the voluntary movements exist also as regards the transmission and the perception of sensitive impressions. They give forcible proofs that one cerebral hemisphere may be quite sufficient for the perception of all the impressions coming from the various parts of the two sides of the body. I will mention only some of the most striking arguments relating to this part of my subject."

The author discovered long ago that very frequently, after a section of a lateral half of the base of the brain, on a mammal, anæsthesia appears on the opposite side of the body and hyperæsthesia on the corresponding side. If on an animal having had such a section on the right side, and having become anæsthetic in the left side of its body and hyperæsthetic in the right side, he divided the left lateral half of the dorsal spinal cord, he obtained this most remarkable result: the left abdominal limb not only recovered sensibility, but became hyperæsthetic, and the right one lost its sensibility. And on these phenomena he reasons thus: "It is evident that if the anæsthesia in the left abdominal limb were produced by the first lesion (that made at the base of the brain), owing to a section of the conductors of the sensitive impressions coming from that limb, the second lesion (made on the dorsal spinal cord) could not have modified sensibility in any way in that part. It is quite certain that the anæsthesia which appeared in the left hind limb after the first lesion was due to a mere dynamical influence, as it disappeared immediately after the second lesion.

"An experiment of Dr. Veyssière had led him to look upon the posterior part of the internal capsule as the place of passage of conductors of sensitive impressions in the brain. This view was admitted by most physiologists, and was soon strongly supported by physicians, who showed that in many cases of disease of that part in man there had been a complete loss of feeling in limbs, trunk and face, on the opposite side of the body. Facts of that kind would be in radical opposition to the view I propose, concerning the duality of the brain, if it were true that we are to explain that loss of sensibility by admitting that the section or destruction of the posterior part of the internal capsule interrupts all communications between the center of perception and the half of the body which becomes anæsthetic. The following experiment will show conclusively that this is not true."

After having made Veyssière's experiment, and ascertained, as he had done, that anæsthesia is caused on the side opposite to that of the operation, the author divided the lateral half of the dorsal spinal cord on the anæsthetic side and found that sensibility not only returned in the hind limb on that side, but became greater than in the normal state. Is is evident, therefore, that it was not owing to the section of supposed exclusive conductors for the transmission of sensitive impressions that there was anæsthesia after the first operation in this case.

If anæsthesia in one half of the body has been produced by the extirpation of the pretended centers of perception of sensitive impressions, as Prof. Schäfer, V. Horsley, and others, have shown to be the case, it disappears also and is replaced by hyperæsthesia in the hind limb, as he has

found, after the division of the lateral half of the dorsal spinal cord on the side where it existed. In this case, as in the preceding, it is evident that it was not absence of a part of the nervous center which was the cause of the loss of feeling.

Clinical facts like these experiments, the author thinks, show that it is not because a diseased part is endowed with the function of perception, or of transmission of sensitive impressions, that anæsthesia appears when a lesion exists in one-half of the brain. "It is produced by an irritation which starts from the neighborhood of the destroyed tissue, and proceeds to more or less distant elements scattered in the nervous centers, inhibiting their function. * * * A great many facts show that anæsthesia, like paralysis, in cases of unilateral lesion, can appear, first, on the corresponding side, and the more frequently the nearer the injury is to the medulla oblongata, and, therefore, the farther from the top surface of the brain; secondly, in the two lower or the two upper limbs; thirdly, in three limbs, or in all four. Like paralysis, anæsthesia also can appear in one side only of the body from lesions occupying the same extent of the base of the brain on the two sides of the middle line; it can, besides, show itself in cases of lesion in any part of the brain, even one not supposed to be employed as conductor or center for sensitive impressions."

One of the strongest arguments the author makes against the received views, and in support of the idea that one side of the encephalon is quite sufficient for the transmission and perception of the sensitive impressions coming from the two halves of the body; is that sensibility can persist entire, notwithstanding the destruction of any part of one-half of the brain.

"The center of perception of sensitive impressions," he goes on to relate, "has been placed in very different parts of the brain. Chiefly from experiments on monkeys, Schäfer, Horsley, and others, have supposed that the seat of that power is the limbic lobe. The fact I have already mentioned, that if the extirpation of that part has caused anæsthesia, a section of a lateral half of the cord will make sensibility reappear, disposes of that supposition. Clinical facts show also that the limbic lobe can be destroyed without any loss of feeling. A talented New York physician, Dr. Charles L. Dana, published two years ago an excellent paper, in which may be found several such cases, to which I could add a number of others. Other physicians place the perceptive power in the convolutions where are localized the psycho-motor centers. In a great many cases, however, these parts have been destroyed without any loss of feeling or paralysis.

"Cases of considerable alteration of a whole cerebral hemisphere, or of all the parts establishing a communication with the base of the encephalon, without any diminution of sensibility or any marked degree of anæsthesia, have been published by Andral, Bouchut, Barthez, Beau, Anger, Gintrac, Porta, Richet, Robertson, Lallemand, and others.

As regards the base of the brain, I know of more than forty cases of considerable alteration or complete destruction of one or the other of the three parts composing it—one crus cerebri or one side of the pons or

medulla—without anæsthesia. It is certain, therefore, that the channels of transmission, as well as all centers of perception of sensitive impression, can be destroyed in one-half of the encephalon without anæsthesia. And this clearly shows that one-half of that great nervous center is quite sufficient for the performance of all functions relating to sensibility in both sides of the body."

The author thus pays his compliments to those physicians, and also certain physiologists, who look upon the secondary or descending degeneration, often seen in cases of disease of the brain, as having the utmost importance with regard to its duality, antagonistic to the theory of the paper. "It is known," he says, "that such degeneration descends from the seat of a lesion in one-half of the brain to the place of intersection of the anterior pyramids, and there passes from one side of the encephalon into the posterior part of the lateral column of the spinal cord, descending to the lumbar end of the spinal center. That the fibers which degenerate in such cases are not, as is supposed, the only or the principal channels of transmission of the orders of the will to muscles, is evident. 1. Cases of degeneration of the anterior pyramids and other parts, without paralysis, have been recorded by Bouchard, Albers, Fürstner and Zacher, Lange, Partridge, Debierre, W. B. Hadden and C. S. Sherrington, Bryson Delavan, Landouzy, Lancereaux, Barié, Luys, and others (I must say that, in those cases, the absence of paralysis is made more decisive by the fact that, besides the degeneration of the base of the brain and the lateral column of the cord, there was a persistence in the brain of the lesion which had given origin to the degeneration). 2. The secondary or descending alteration, instead of being, as it should, a continuous one, may show itself in one part and not in the next, as evidenced by cases of Landouzy, Lépine, Létut, Hanot, Vulpian, Bourneville, Védie, and others. 3. The secondary degeneration may not appear, however great and persistent may be a brain lesion giving rise to paralysis. 4. The part of the spinal cord which is altered in a descending degeneration is hardly a motor part.

"That we have more brain matter than is needed, is clearly proved by the facts and reasonings contained in this paper. This is shown also by a great many cases in which a considerable destruction of cerebral tissue, on the two sides, has occurred without any loss to either the physical or the mental functions of the brain. Not only can half of the encephalon carry on all the functions known to belong to the whole brain, but there are cases of almost complete destruction of one side and also of a part of the other side of the brain, without either an alteration of the mental powers or the loss of the physical faculties of that great nervous center."

In connection with the subject of the duality of the brain there is another point, esteemed by the author of great importance. With this he concludes this thoughtful, researchful, entertaining paper. "It is that we have a great many motor elements in our brain and our spinal cord which we neglect absolutely to educate. Such is the case particularly with the elements which serve for the movements of the left hand. Perhaps fathers and mothers will be more ready to develop the natural powers of the left hand of a child, giving it thereby two powerful hands, if they believe, as

I do, that the condition of the brain and spinal cord would improve if all their motor and sensitive elements were fully exercised."

In 1844, Dr. Arthur Tadbroke Wigan put forward in a very ingenious manner, and attempted to prove the following propositions, which in view of the present progress of cerebral localization and the acknowledged vicarious action of the cerebral hemispheres, are quite interesting reading, and we reproduce them, as the book is out of print:

"1. That each cerebrum is a distinct and perfect whole, as an organ of thought.

"2. That a separate and distinct process of thinking or ratiocination may be carried on in each cerebrum simultaneously.

"3. That each cerebrum is capable of a distinct and separate volition, and that these are very often opposing volitions.

"4. That, in the healthy brain, one of the cerebra is almost always superior in power to the other, and capable of exercising control over the volitions of its fellow, and of preventing them from passing into acts, or from being manifested to others.

"5. That when one of these cerebra becomes the subject of functional disorder, or of positive change of structure, of such a kind as to vitiate mind or induce insanity, the healthy organ can still, up to a certain point, control the morbid volitions of its fellow.

"6. That this point depends partly on the extent of the disease or disorder, and partly on the degree of cultivation of the general brain in the art of self-government.

"7. That when the disease or disorder of one cerebrum becomes sufficiently aggravated to defy the control of the other, the case is then one of the commonest forms of mental derangement or insanity; and that a lesser degree of discrepancy between the functions of the two cerebra constitutes the state of conscious delusion.

"8. That in the insane, it is almost always possible to trace the intermixture of two synchronous trains of thought, and that it is the irregularly alternate utterance of portions of these two trains of thought which constitutes incoherence.

"9. That of the two distinct simultaneous trains of thought, one may be rational and the other irrational, or both may be irrational; but that, in either case, the effect is the same, to deprive the discourse of coherence or congruity.

"Even in furious mania, this double process may be generally perceived; often it takes the form of a colloquy between the diseased mind and the healthy one, and sometimes even resembles the steady continuous argument or narrative of a sane man, more or less frequently interrupted by a madman; but persevering with tenacity of purpose in the endeavor to overpower the intruder.

"10. That when both cerebra are the subjects of disease, which is not of remittent periodicity, there are no lucid intervals, no attempt at self-control, and no means of promoting the cure; and that a spontaneous cure is rarely to be expected in such cases.

"11. That however, where such mental derangement depends on inflammation, fever, gout, impoverished or diseased blood, or manifest bodily disease, it may often be cured by curing the malady which gave rise to it.

"12. That in cases of insanity, not depending on structural injury, in which the patients retain the partial use of reason (from one of the cerebra remaining healthy or only slightly affected), the only mode in which the medical art can promote the cure beyond the means alluded to is by presenting motives of encouragement to the sound brain to exercise and strengthen its control over the unsound brain.

"13. That the power of the higher organs of the intellect to coerce the mere instincts and propensities, as well as the power of one cerebrum to control the volitions of the other, may be indefinitely increased by exercise and moral cultivation; may be partially or wholly lost by desue-

tude or neglect; or, from depraved habits and criminal indulgence in childhood, and a general vicious education in a polluted moral atmosphere, may never have been acquired.

"14. That one cerebrum may be entirely destroyed by disease, cancer, softening, atropy, or absorption; may be *annihilated*, and in its place a yawning chasm; yet the mind remain complete and capable of exercising its functions in the same manner and to the same extent that one eye is capable of exercising the faculty of vision when its fellow is injured or destroyed; although there are some exercises of the brain, as of the eye, which are better performed with two organs than one. In the case of vision, the power of measuring distances for example, and in the case of the brain, the power of concentrating the thoughts upon one subject, deep consideration, hard study; but in this latter case, it is difficult to decide how far the diminished power depends on diminution of general vigor from formidable and necessarily fatal disease.

"15. That a lesion or injury of both cerebra is incompatible with such an exercise of the intellectual functions, as the common sense of mankind would designate *sound mind*.

"16. That from the apparent division of each cerebrum into three lobes, it is a natural and reasonable presumption that the three portions have distinct offices, and highly probable that the three great divisions of the mental functions laid down by phrenologists, are founded in nature; whether these distinctions correspond with the natural divisions is a different question, but the fact of different portions of the brain executing different functions, is too well established to admit of denial from any physiologist.

"17. That it is an error to suppose the two sides of the cranium to be always alike, that on the contrary, it is rarely found that the two halves of the exterior surface exactly correspond; that indeed, in the insane, there is often a notable difference—still more frequent in idiots, and especially in congenital idiots.

"18. That the object and effect of a well-managed education are to establish and confirm the power of concentrating the energies of both brains on the same subject at the same time; that is, to make both cerebra carry on the same train of thought together, as the object of moral discipline is to strengthen the power of self-control; not merely the power of both intellectual organs to govern the animal propensities and passions, but the intellectual antagonism of the two brains, each (so to speak) a sentinel and security for the other while both are healthy; and the healthy one to correct and control the erroneous judgments of its fellow when disordered.

"19. That it is the exercise of this power of compelling the combined attention of both brains to the same object, till it becomes easy and habitual, that constitutes the great superiority of the disciplined scholar over the self-educated man; the latter may perhaps possess a greater stock of useful knowledge, but set him to study a new subject, and he is soon outstripped by the other, who has acquired the very difficult accomplishment of *thinking of only one thing at a time;* that is, of concentrating the action of both brains on the same subject.

"20. That every man is, in his own person, conscious of two volitions, and very often conflicting volitions, quite distinct from the government of the passions by the intellect; a consciousness so universal, that it enters into all figurative language on the moral feelings and sentiments, has been enlisted into the service of every religion, and forms the basis of some of them, as the Manichæan."

The distinguished author before us, long ago, in Washington, Brooklyn and New York, then an American physician, made experiments and wrote to show that each of the cerebral hemispheres is a complete brain, endowed with all the powers that we know belong to the whole cerebrum. He then especially put forth and now tries to establish, with

remarkable plausibility, the idea that half of the brain is capable of originating all the voluntary movements of both sides of the body and possibly the powers of perception of the various sensitive impressions that may proceed from the whole body, so that in the same manner as we have two eyes, two ears, etc., we also have two great nerve centers, each of which is capable of performing in its full extent every physical cerebral function, thus verifying the conjecture of Wigan and his predecessors, who approached the same subject—Pinel, Bérard, Bouillaud, and even the poet Goethe.

STORIES OF A COUNTRY DOCTOR. By Willis P. King, M. D., with numerous illustrations by Fitzgerald.

This is a mirth-provoking and instructive book for the busy, tired doctors' leisure hours. It is dedicated to the progressive, good, conscientious and true men of the medical profession of the United States and the jolly good fellows everywhere, by the talented and humorous author. The author is well known to Missourians as a surgeon of ability and a jolly good fellow. His professional skill is fully equal to his renowned ability to set the table in a roar; and the stories which e laugh-provoking author tells in the book are not half the good ones he might have told had the publishers allowed him more space.

We never saw King when he could not tell a good story but once. As Mark Twain said of a certain lady who was a victim of his wit, he is a perfect polyglot, but somehow his palate got down and he did not chirp a humorous chirp all the evening. That time was when the hotel porter sent him to the train with a promise in advance of his baggage which never came before the train went on. The wonted mirthfulness of his features then bore the expression "of a tale of woe," and McGinty in the bottom of the well looked just as happy as our King. But on the whole the book will richly pay you in innocent fun the price you invest in its purchase. It is issued by the Hudson-Kimberly Publishing Company, of Kansas City, Mo. The story of the "Giminasceum" surgeon ought to have appeared in this book.

TROPHO-NEUROSIS AS A FACTOR IN THE PHENOMENA OF SYPHYLIS. By G. Frank Lydston, M. D., of Chicago.

Before the November, 1889 meeting of the Southern Surgical and Gynecological Association there was read a suggestive and thoughtful paper abreast of advanced neurological thought and observation upon the above subject. The author is a thoroughly observant syphiologist, who does not confine the range of his vision exclusively to the genitalia in the study of the all-pervading disease syphilis, or to the circumscribed area given to it by the older syphyolographs, who were unacquainted with the wonderful recent advances in neuropathology.

The paper may be read in full in the *Western Med. Reporter*, of which Dr. Lydston is associate editor. We have space here for only a few extracts, to show the tenor of this interesting and valuable contribution to recent genito-urinary literature.

The author says: "The relation of certain syphilitic phenomena to organic or functional disturbances of the nervous system—and par-

ticularly the sympathetic system—is certainly manifested here and there along the whole line of morbid phenomena developed in the course of the disease. The syphilitic fever, so-called, while an inconstant phenomenon, is present in a sufficient number of cases of the disease to practically settle the question of the relation of cause and effect. The symptoms which collectively we designate syphilitic fever, are, in common with some other febrile constitutional disturbances, undoubtedly dependent upon the action of a special poison upon the sympathetic nervous system. It is logical to infer from what we know of the physiology of the sympathetic system, and particularly of those functions of the sympathetic which we term trophic, that the majority of fevers—if not all—are directly dependent upon the action of the specific poison upon the sympathetic ganglia, which action is manifested by disturbed metabolism and the resulting phenomena of fever. So in the case of syphilis, the poison may produce so profound an impression upon the sympathetic ganglia that the trophic function of this portion of the nervous system is disturbed, with an attendant perversion of tissue metabolism, a resultant excessive production of animal heat and the accumulation in the system of the toxic products of perverted physiochemical change.

"The argument that the syphilitic fever is the result of an impression produced by the syphilitic poison upon the sympathetic nervous system does not necessarily imply—nor do I intend it to do so—that the syphilitic fever is a part of the natural course of the disease. On the contrary, I believe that it is accidental and the result of idiosyncrasy. The fact that the so-called syphilitic fever is not a constant phenomenon, but affects only a certain portion of individuals attacked by syphilis is explicable upon this ground. We know that different individuals are variously affected by the constitutional impression of organic poisons. Certain individuals are affected by urticaria or erythema upon the ingestion of shell-fish, this result being particularly apt to follow when the particular article of food is not perfectly fresh or was not in an absolutely healthy condition when taken for food. Some persons are seriously affected by the ingestion of certain vegetables—particularly if partial decomposition has occurred. Canned vegetables, and especially tomatoes, are especially liable to impeachment upon this ground. If it is fair to infer that by virtue of idiosyncrasy the nervous system of certain individuals may be morbidly impressed by certain food substances which are innocuous to the majority of individuals, it is certainly fair to assume that in the case of so powerful an organic poison as that of syphilis, with which a large number of individuals are inevitably inoculated, certain special and exceptional phenomena might be produced in some persons.

"Attendant upon or following the syphilitic fever, or occurring independently of it, we have a characteristic manifestation of syphilis, which in cases unmodified by treatment is probably always present in greater or less degree. I refer to the syphilitic roseola. This eruption has been shown to be unlike the other phenomena of syphilis, in that it is dependent, not upon a localized collection of proliferating syphilized

cells, but upon vaso-motor disturbances, the essential objective element of which consists in dilatation of the capillaries in localized areas of the skin. This, as far as we are able to positively determine, is dependent upon the impression of the syphilitic poison—virus, bacillus, degraded cell, or whatever term may be selected to designate it—upon the central sympathetic system. This impression is essentially the same as that produced by certain vegetable poisons. It is not, however, dependent upon idiosyncrasy, although it may be modified by it; thus we find in some individuals a very marked roseola, in which the lesions are disseminated over a large area of the integumentary surface and are very prominent and well-defined; whereas in others we may find upon close inspection perhaps but a single lesion. The gradations between the two extremes are very various.

* * * * * * * * * *

As a most positive proof of the relation of eruptions of the skin to nervous disturbance of a presumably trophic character, the author alludes to herpes zoster. "In this disease we find an accurate delineation of the course of the affected nerve by the eruption, and a very manifest local disturbance of nutrition of the affected tissues. Generally some portion of but one side of the body is affected by this disease. It is sometimes bilateral and consequently of a more serious character than usual. Some of the later lesions of syphilis are unilateral, and as will be shown by a case shortly to be related, almost as plainly referable to the distribution of a particular nerve as is the case with herpes zoster.

* * * * * * * * * *

The author thus describes the alopecia which occurs during the secondary period:

"Very few cases, if any, which are unmodified by treatment, escape this disagreeable symptom of the disease. Indeed, under the most careful and scientific treatment, a greater or less degree of alopecia is frequently observed. The shedding of the hair is limited chiefly to the scalp. The eyebrows are affected, but the beard is little if at all involved, as a rule. Other hairy parts of the body are not generally involved, even though there may be quite a general eruption over the surface of the body. Should destructive lesions occur in any situation supplied by hair, a temporary or even permanent shedding will be likely to result. The manner in which the hair is shed from the scalp is most striking and characteristic in most cases; instead of there being a general shedding, the process seems to affect the scalp in spots, as a consequence of which, the head assumes an embarrassing piebald appearance, which he who runs may read. Otis and others attribute this alopecia to an accumulation of syphilized germinal material in and about the hair follicles, this deposit producing mechanical impairment of nutrition of the hair, as a consequence of which it is cast off.

"Strange to say, however, if this theory be correct, lesions of the scalp of sufficient prominence to attract attention are quite rarely associated with alopecia. A few small papules, pustules and crusts are occasionally found, but hardly ever in sufficient amount to account for

the extensive falling of the hair. It will be found, to be sure, that at the site of such lesions the hair invariably falls out. Now it seems to me that if the syphilitic material had such an affinity for the scalp as would be indicated by the theory of localized cell deposit, the cutaneous lesions of this portion of the integumentary surface would be especially pronounced. It is hardly probable that in the presence of such an affinity for the hair follicles, a deposit of syphilitic material would accumulate to such an extent as would be sufficient to deprive the hair follicle of nutrition and yet fall short of a sufficient amount to be perceptible externally. There may be, it is true, more or less accumulation of germinal material in the hair follicles, but there yet remains the necessity for an explanation of its deposition in this location.

"From these considerations I have been led to believe that the alopecia of syphilis is precisely similar to that which occurs in other diseases as a consequence of local malnutrition incidental to disturbed nervous supply and general malnutrition. In certain fevers, for example, shedding of the hair is quite common during convalescence—perhaps well along in the period of convalescence. This is due to a general perversion of nutrition which must necessarily affect an epidermal structure of a low grade of vitality, such as the hair. This perversion of nutrition is in my opinion due, to a greater or less extent, to disturbance of the functions of the sympathetic nervous system—in other words, to tropho-neurosis.

* * * * * * * * * *

"It would appear that syphilitic infection not only has a peculiar affinity for the sympathetic nervous system, but that this affinity is particularly marked in the case of the upper or cervical portion of the sympathetic. The proportion of lesions about the head, face and mouth, is relatively much larger, even under the best of treatment, than in other portions of the body.

* * * * * * * * * *

"Even in congenital syphilis we can see evidences of tropho-neurotic disturbance. The peculiar affinity of the syphilitic process for the epiphyso-diaphysial junction of the long bones is strikingly suggestive. It is here that the processes of growth and nutrition are most active and tissue-building the most rapid. It is consequently at this point that disturbance of the trophic function of the sympathetic which presides over the physiological processes of nutrition and growth would be most likely to be manifested by pathological change.

* * * * * * * * * *

"If the neurotic theory of the essential condition in syphilis be correct, we have, in our efforts to discover a specific remedy for syphilis, been necessarily led away from those lines of research which would lead to a correction of the principal element in the production of the syphilitic phenomena. The severity of the results of syphilis would appear to depend (1) upon the individual susceptibility of the nervous system of the patient; (2) upon his constitutional condition, and, incidentally, on the resisting power of his tissues; (3) upon the action of remedies; this being by no means the most important consideration."

* * * * * * * * * *

Following are some of the further conclusions of the author:

"The association of obstinate tubercular syphilides with nervous syphilis is well known. It seems that the danger of involvement of the central nervous system is directly proportionate to that of severe syphilides.

"In considering the tropho-neurotic character of the late lesions of syphilis, I do not ignore the fact that syphilis may act directly upon the nervous system in several different ways:

"1. By the direct effect of syphilitic deposit upon the nerve-cells or fibers, or membranes of the brain and spinal cord.

"2. By changes in the membranous envelopes of the brain and spinal cord.

"3. By deposits in and about the blood-vessels which induce circulatory disturbance.

"4. By a proliferation and condensation of connective tissue which remains after the syphilitic material, *per se*, has been removed.

There is probably a difference in the late and early forms of syphilitic lesions in the manner in which the tropho-neurotic element is brought about. Thus it may be due in the *first* place, to a direct impression of the syphilitic poison upon the sympathetic nervous system. *Secondly*, upon direct pressure upon the nervous structures. *Thirdly*, upon a disturbance of function and nutrition of the nervous structures incidental to interference with blood supply.

It is probable that mercury acts upon the nervous system in very much the same manner as does syphilis. It is very difficult to differentiate late syphilitic lesions of the bones and of the mucous membranes from those directly due to the action of mercury. That mercury exerts a powerful effect upon the sympathetic nervous system is, it seems to me, shown conclusively by the phenomena of ptyalism, which cannot be accounted for solely upon the theory of the production of irritation. The well-known power of mercury over the secretions is probably due to its influence upon the sympathetic ganglia. When the injurious action of mercury is superadded to syphilis, there is a more marked tendency to tropho-neurotic phenomena than in well-treated cases of the disease. Indeed, the excessive use of mercury often seems to determine the predilection of late syphilis for the bones of the head and face. It is quite as capable of producing necrosis or destructive ulceration of these parts, as is syphilis, *per se*.

"Positive demonstration of the dependence of the phenomena which I have outlined upon nervous disturbance, is of course difficult, but the inferences which I have drawn appear to me to be logical. In considering the question of trophic disturbances in their relation to destructive syphilitic processes it is well to remember the familiar physiological experiment of section of the sympathetic in the neck of the rabbit. The same experiment is also interesting as bearing upon the faucial congestion of early syphilis. The reddening of the ear of the rabbit, the inflammation and sloughing of the cornea incidental to section of the sympathetic are certainly suggestive. To carry the analogy of this physiological demonstration a little further, the author

calls attention to the serious corneal trouble which sometimes results from herpes frontalis *seu* orbicularis."

FAMILIAR FORMS OF NERVOUS DISEASES. By M. Allen Starr, M. D., Ph. D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, New York.

The appearance of this book produces a favorable impression. We are at once predisposed in its favor by its dress, just as we are in people. Just as we naturally expect to find dignity, character and true worth in a well-dressed individual upon further acquaintance with him, so we do in the case of a well-dressed book. In both cases we are disappointed when this is not the result of our observation.

In the preface Dr. Starr says: "This work is not a treatise upon nervous diseases. It is a series of clinical studies of the more familiar types." This is exactly what the book is. The author has been assisted in preparing the book by Dr. F. Peterson, Chief of Vanderbilt Clinic and the assistants, Drs. Vought, Skinner, Swift and Goodkind. Cases coming to the Vanberbilt Clinic and occurring in the private practices of these gentlemen, have been utilized, besides the most recent literature. Altogether the book gives us an excellent idea of the recent advances made in neurology and psychiatry. The first two chapters, on "Localization of Cerebral Functions" and "The Functions of the Cerebral Cortex," are expositions of the subject which are simple, easily read and ought to be of immense value to those who have not at hand the literature upon these subjects which has appeared in the last five years.

To our mind, the most interesting and valuable part of the book is that which treats of "Cortical Areas Governing Language" (Chap-VI.) The situations of the lesions causing aphasia are located by the author as follows: That for word-deafness in the posterior two-thirds of the first and second temporal convolutions; that for word-blindness in the angular; that for motor-aphasia in the posterior part of third left frontal; that for agraphia in the posterior part of the second frontal. The subject of aphasia in all its comprehensiveness is treated in plain, simple and forcible style. The problems for solution in this form of mental defect are more interesting, difficult and com. prehensive than those of the chess-board. The rules given for testing aphasics are clear and exact.

In the chapter on the localization of spinal cord disease, a typical and instructive case of Brown-Séquard paralysis is recorded. The anæsthesia which was present on one side from the mid-dorsal region down to toes is represented in the diagram by dots, while the hyperæsthesia occupying a corresponding position on the other side, is represented by straight lines.

The suspension treatment for locomotor ataxia in the large majority of cases failed to benefit patients. For paralysis agitans, hyoscyamia is most used at the Vanderbilt clinic.

124 cases of chorea treated at the clinic are analyzed. The greatest

number of cases occurred before the age of fourteen. But seven cases over twenty-five years of age are recorded. As to the cause of the affection—only ten attributed it directly to rheumatism, but rheumatism had at some time attacked twenty-four of the patients. Fourteen were caused by fright, two by over-study, one each by pregnancy, overwork, excitement and measles. In eighty-one *no cause could be assigned.*

The various forms of epilepsy are treated in detail, but nothing specially new is given, unless we except the cases of psychical epileptic equivalent or "double consciousness" recorded on page 265. In treatment, the chief reliance is placed upon bromides. Simulo was tried with indifferent result. Antifebrine was also tried without effect.

Dr. Peterson writes an interesting chapter on "The Ordinary Forms of Insanity." Seventy-one cases are analyzed. This number includes cases of hypochondriasis, melancholia, paranoia, imbecility, idiocy, general paresis, hallucinatory mania, senile dementia, secondary dementia, hysterical mania, acute masturbational insanity, heboidophrenia. The author makes the following simple grouping of insanity for the use of general practitioners. It seems to us it ought to serve a useful purpose:

I.—Defect of Brain: (*a*) Idiocy; (*b*) Imbecility; (*c*) Feeble-mindedness; (*d*) Psychical Degeneracy (paranoia).

II.—Diseases of Brain: (*a*) Mental Depression (melancholia); (*b*) Mental Exaltation (mania); (*c*) Mental Enfeeblement (dementia); (*d*) General Paresis (dementia paralytica).

In discussing the treatment of the insane, Dr. Peterson says the large public asylums are hampered in their treatment by the enormous number of patients and the lack of the corresponding number of physicians and attendants. The superintendent is seldom a trained alienist; often the asylums subserve the interests of political machinery. The assistant physicians are preoccupied with clerical and office duties. The asylums are characterized as little more than warehouses for the storage of unnecessary articles. At present the private asylums are far more desirable places in which to place patients.

The author hopes that the day may not be far distant when the large general hospitals will provide special wards and pavilions for the care of those with sick brains.

We regret that the last chapter in the book alone—that which treats of electricity—we cannot commend. While it is true that there have been those enthusiasts who have claimed that electricity was a "cure-all," this is not sufficient reason for discountenancing its use. The author's opinion is with those who have swung in the pendulum of public opinion too far the other way. The mountain on each side is not the haven of rest but the valley between. We believe that the true place of electricity is in the valley between these two mountains of opinion.

Notwithstanding the fact that the author has studied the apparatus and methods of Erb, De Watteville, Benedict and Beard, we feel that many of his conceptions, not only of the therapeutics but the physical laws of electricity, are at fault—some indeed flagrantly fallacious.—T. D.

TYPHOID FEVER. By V. W. Gayle, M. D., Kansas City, Mo., late Physician to Harlem Asylum; late Surgeon to Navassa Island, W. I.

This is a reprint from the *St. Louis Courier of Medicine*, in which the author in conclusion memorizes his treatment as follows: "Reduce the temperature by suitable antiseptics, of which Antikamnia is one of the best, assisted by sponge baths; feed the patient to the extent of two quarts of milk a day, give alcoholic stimuli, and destroy the micro-organisms by antiseptics." And introduces his paper with a half-page ad. of the *Courier of Medicine*, as follows:

"Reprint from the *St. Louis Courier of Medicine*. A Monthly Journal of Practical Medicine and Surgery. The Official Organ of the St. Louis Medical Society, the St. Louis Medico-Chirurgical Society, the St. Louis Obstetrical and Gynecological Society, the Missouri Medical Philalethic Society. Vol. III., No. 2, Whole No. 17. Editors: H. Tuholske, M. D., Surgery; A. V. L. Brokaw, M. D., Genito-Urinary Surgery; L. T. Riesmeyer, M. D., Surgical Pathology; John B. Keber, A. B., M. D., Dermatology; Henry L. Wolfner, M. D., Ophthalmology; D. C. Gamble, M. D., Otology; H. W. Hermann, M. D., Neurology; Justin Steer, Ph. B., M. D., Clinical Medicine and Therapeutics; W. K. Bauduy, M. D., Mental Diseases; F. C. Ameiss, M. D., Gynecology; E. M. Nelson, M. D., Obstetrics; L. E. Newman, M. D., Venereal Diseases; L. A. Turnbull, M. D., Managing Editor. Subscriptions, articles for publication, exchanges, books for review, etc., should be directed to L. A. Turnbull, M. D., Sixth and Walnut Streets, St. Louis, Mo., U. S. A. Subscription price, $2.00 a year in advance; single copies, 25 cents. August, 1890."

This is handicapping a reprint heavily. To carry antikamnia as the chief reliance in the treatment of typhoid fever is a good deal, but to carry antikamnia and the *St. Louis Courier of Medicine*, with its medical staff of fifteen collaborators, four medical societies, terms of subscription and all, looks like too much to put on one little monograph—looks like riding a willing little donkey to death, as it were.

We have nothing to say against antikamnia, for it is one of the best, if not the best, of the coal tar analgesic and antipyretic products and put out by a reliable firm. It is a St. Louis pharmaceutical offering to the profession and worthy of confidence, but a good therapeutic friend may receive a bad introduction. Nor have we anything against the *Courier*. If we had we would write a monograph and tack all these names, titles, etc., to it.

EPILEPSY: ITS PATHOLOGY AND TREATMENT. By Hobart Amory Hare, M. D. (Univer. Penn.), B. Sc., Clinical Professor of Diseases of Children and Demonstrator of Therapeutics in the University of Pennsylvania.

This exhaustive essay of 225 pages was awarded a prize of 4,000 francs by the Académie Royale de Médécine de Belgique, December 31, 1889. The author has searched the literature of all lands and all ages to prepare this treatise. He has attempted "to separate the good material in literature from the vast mass of superstitious nonsense,"

and from this give the consensus of opinion upon epilepsy. Criticisms, comments and deductions are frequently indulged in by the author, and he occasionally quotes from his own experience to promulgate his views. In places philanthropic attempts are made to reconcile the apparent inharmonious views of various writers.

It seems to us that there is undue discussion indulged in on some divisions of the subject, while others are comparatively slighted. For instance, only a page is devoted to psychic epilepsy and only one author is quoted. Certainly Dr. Hare must be cognizant of many other cases in literature. This is an extremeiy interesting phase of the subject, and it is to be regretted that it is not discussed at greater length. The etiology and pathology are discussed at great length. The author argues strongly in favor of the cortex as the primary seat of the disease, although a large number of those who dissent from this view are quoted. The preponderance of weight of the later authorities certainly supports Dr. Hare's views.

Of the drug treatment, the weight of evidence supports the author in according the first place to the bromide of potash. Antifebrine and antipyrine are also thought to be useful. A number of other remedies are discussed.

The task of preparing the work must have been most laborious, but we think that Dr. Hare will be repaid for his efforts (besides the 4,000 francs he has already received) by a wide appreciation of the work by the profession; for the book will be instructive to those who have not kept abreast with the recent literature upon this subject. Indeed, the work is a sort of dictionary of epilepsy—a reference guide-book upon the subject. T. D.

HYGIENE ET TRAITEMENT DES MALADIES MENTALES ET NERVEUSES. Traduit par Wladimir de Holstein, M. D. Paris. Ancienne Librairie Germer Baillière et Cie. Felix Alcan, Editeur, 108 Boulevard Saint-Germain. 1890.

Readers of the French will find this an instructive and well-written volume. Some selections from it and a further review will appear in a subsequent issue of the ALIENIST AND NEUROLOGIST. Writers for the ALIENIST AND NEUROLOGIST have been largely drawn upon by the distinguished author.

THE DOGS OF WAR is a Newspaper Reporter's Army Experience "in a time of peace," by Frank R. E. Woodward, the *St. Louis* "*Reporter* Recruit," who enlisted in the United States Army and served three months, to expose the cruel treatment of the soldiers.

The author, whose first Christian name is Frank, has fulfilled the promise of his cognomen in giving to the public a *frank* and fair statement of flagrant abuses of the men at Jefferson Barracks by the non-commissioned officers and others interested with them, as the investigation sequel of the Court of Inquiry findings have proven. The author's style is clear and not wearisome. The friend of the soldier, of fair play for "Uncle Sam's" recruits and of humanity in general, will be inter-

ested, and the patriot who believes in good treatment for his country's soldiers will be entertained by it. The author has talent for description and courage to dare in a good cause. The *Post-Dispatch* has enterprise, and the narrative is truthful. This trinity of good qualities ought to enlist public interest in and patronage of the book. Now that talented author has come home and let slip the dogs of war, we hope he will note that an appreciative public has its speaking trumpet to his ear, beckoning him to "come again."

THE REVIEW OF INSANITY AND NERVOUS DISEASE.—The first number of this journal is on our table. It is announced as a quarterly compendium of the subject from *all languages*, specially adapted to the needs of *general practitioners*. Articles are condensed, simplified, and only *practical features noticed*. Therapeutics will be specially considered. The literature of the subject from *hundreds* of *journals* is reproduced in its pages. The *cheapest quarterly* in any language. Edited by J. H. McBride, M. D., Superintendent Milwaukee Sanitarium for Nervous Diseases; associated with Landon Carter Gray, M. D., New York City; C. K. Mills, M. D., Philadelphia; C. Eugene Riggs, M. D., St. Paul, Minn.; W. A. Jones, M. D., Minneapolis, Minn.; H. M. Bannister, M. D., Kankakee, Ill. Subscription, $2.00 per year. It may be ordered of the editor or of B. Westermann & Co., 812 Broadway, New York, or W. T. Keener, 96 Washington St., Chicago.

We cordially welcome the new journal into the fold and wish for a prosperous career, feeling assured that the energy and ability of the very capable gentlemen conducting it, will achieve this result.

A COMPLETE DIRECTORY OF THE AMERICAN PRESS has been issued by Lord & Thomas, Newspaper Advertising, 45 to 49 Randolph Street, Chicago, Ills. It is elegantly bound in Morocco and printed with new pearl type on the finest plate paper. The volume is convenient in size, elegant in appearance, complete in details—not filled with advertisements, and gives accurate reports on the circulation of every newspaper in the country. The price is $2.00.

VOLUME XI. OF THE INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE.—The Surgeon-General will please accept our hearty thanks for this valuable reference volume It is gratifying to see that this work still maintains its established high standard of excellence as to quality, typographical execution and editorial arrangement.

Veränderungen des Nervensystems nach Amputationen. Von Professor Dr. E. A. Homén. Hierzu Tafel XVIII und XIX. Aus dem pathologischen Institute der Universität Helsingfors. Sonderabdruck aus Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie, herausgegeben von Professor Dr. Ernst Ziegler, Band VIII..

Zur Kenntniss der Hemiatrophia facialis und des Ursprungs des Nervus trigeminus. (Nach einem zu Helsingfors in der Gesellschaft

der finnländischen Aerzte gehaltenen Vortrage am 12. April 1890.) Von Professor Dr. E. A. Homén.

Eine eigenthümliche Familienkrankheit, unter der Formeiner progressiven Dementia, mit besonderem anatomischen Befund. Von Professor Dr. E. A. Homén in Helsingfors (Finland).

New Methods of Performing Pylorectomy, with Remarks upon Intestinal Anastomotic Operations. By A. V. L. Brokaw, M. D., St. Louis, Mo.

Intestinal Anastomotic Operations with Segmented Rubber Rings, with some Practical Suggestions as to Their Use in Other Surgical Operations. By A. V. L. Brokaw, M. D., St. Louis, Mo.

The County Insane Asylum System in Wisconsin. By J. M. Dodson.

Acute Myelitis Preceded by Acute Optic Neuritis. By J. T. Eskridge, M. D., Denver, Col.

Some Points in the Diagnosis of Certain Simulated Mental and Nervous Diseases. By J. T. Eskridge, M. D., Denver, Col.

Homonymous Hemiopic Hallucinations. By Frederick Peterson, M. D., New York.

Case of Large Cerebellar and Several Smaller Cerebral Hemorrhages. By Theodore Diller, M. D.

Uric Acid Diathesis in Affections of the Eye, Ear, Throat and Nose. By W. Cheatham, M. D.

Climatology and Diseases of Southern California. By F. D. Bullard, A. M., M. D.

Large or Small Hospitals for the Insane—Which? By C. E. Wright, M. D., Indianapolis, Indiana.

A Successful Case of Nephrectomy. By George Ben. Johnston, M. D., Richmond, Va.

What is the Present Medico-Legal Status of the Abdominal Surgeon? By William Warren Potter, M. D., Buffalo, N. Y.

Functional Nervous Diseases of Reflex Origin. By Albert Rufus Baker, M. D., Cleveland, Ohio.

The Treatment of the Acutely Insane in General Hospitals. By W. P. Spratling, M. D.

Fever, Thermotaxis and Calorimetry of Malarial Fever. By Isaac Ott, M. D.

A Case of Chorea Attended with Multiple Neuritis. By Frank R. Fry, A. M., M. D., St. Louis, Mo.

The Chloride of Silver Dry-Cell Battery Co.'s Chloride of Silver Dry-Cells. Extract from the *Bulletin* of the Johns Hopkins Hospital.

Steigerung der allgemeinen Reflexerregbarkeit als aussergewöhnliche Chinin-Wirkung. Von Dr. Albrecht Erlenmeyer.